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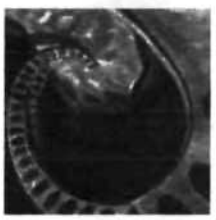

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Letters to the Editor

Antiscience in Academia: "Knocking Science for Fun and Profit"

The criticisms of "Antiscience in Academia" by Paul R. Gross, Norman Levitt, and Noretta Koertge in the March/April 1995 *SI* are perceptive, but far too kind. They should have referred to *The Open Society and Its Enemies* (Princeton University Press, 1962) by one of our greatest modern philosophers, the late Karl Popper. In Chapter 24, "Oracular Philosophy and the Revolt Against Reason," they would have noted:

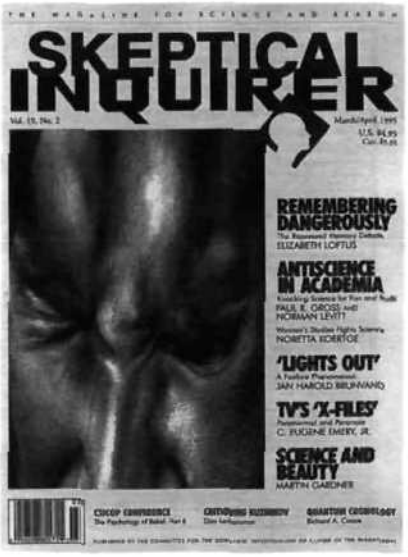
> Like Hegel's doctrine that our ideas are determined by national interests and traditions, Marx's doctrine tended to undermine the rationalist belief in reason. Thus threatened both from the right and from the left, a rationalist attitude to social and economic questions could hardly resist when historicist prophecy and oracular irrationalism made a frontal attack on it. This is why the conflict between rationalism and irrationalism has become the most important issue of our time.

And this was written in 1943.

Popper's fine logic and reason go further than this, but it should suffice to note that Marxism and its modern pseudoscientific derivatives, can *never* be anything but antiscientific. They are based on a Christian antirational millennialism. Marxism hides this under a pseudoscientific patina, but Popper tore this cover off and labeled it "historicism." Marxism and all its pretentious descendants are based on a carefully disguised Christian millennialism masked under the pretensions of opposition to religion.

Leftist academic antiscientism and right-wing Christian assaults on reason are thus cousins under the skin. One is posing as the word of god, the other as the word of Marx, Marxism's surrogate for god. We must not let these two assaults on reason destroy science in America.

George Rowell
New York, N.Y.



I was very pleased to learn of the book by Gross and Levitt and to see that these careful scholars have exposed the abuse of science by left-wing academia. Not because I believe the truth is halfway between the extremes, but because I believe serious abuse of science exists on both wings of the political spectrum, I would also like to see a systematic exposure of right-wing irrationality. Some of the typical right-wing aberrations are: a flirtation (in some cases, even a torrid affair) with creationism; a dogmatic belief in the truth of Artistotle's metaphysical views, in some cases, leading to the hubris/chutzpah of articles in the *American Spectator* challenging the theory of relativity; acceptance of a host of free-market economic doctrines with a confidence that goes far beyond what any historical facts will support. The first of these seems to have captured a large segment of the working-class right wing and is especially prevalent among Protestants; the second seems to have a great deal of appeal for the disciples of Mortimer Adler and fetches a considerable number of Catholic intellectuals; the third (the murkiest area in which to argue) usually turns out to be the result of raising a trite doctrine—that income should not be redistributed from

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Klingon and Other Artificial Languages

Do you speak Esperanto? Like a native!

MARTIN GARDNER

According to Genesis there originally was only one human language, the tongue spoken by Adam and Eve. Why did Adam name the elephant an *elephant?* Because, goes an old joke, it *looked* like an elephant. Then a terrible tragedy occurred. The Hebrews tried to scale the heavens by building the Tower of Babel. God was so offended by this hubris that he said:

> Behold, the people is one, and they have all one language . . . and now nothing shall be restrained from them. . . . Go to, let us go down, and there confound their language, that they may not understand one another's speech. So the Lord scattered them abroad from thence upon the face of all the earth. (Gen. 11:6-8)

In *Paradise Lost* (Book 12) Milton described it this way:

> To sow a jangling noise of words unknown:
> Forthwith a hideous gabble rises loud
> Among the Builders; each to other calls
> Not understood, till hoarse, and all in rage,
> As mockt they storm; great laughter was in Heav'n
> And looking down, to see the hubbub strange
> And hear the din.

Why God and the angels would find this curse amusing is hard to fathom. At any rate, who can doubt that the multiplicity of world languages is an enormous barrier to world peace. Clearly world unity would be greatly augmented if somehow the babble of tongues could be replaced by a single language.

In ancient times Greek, Latin, and Arabic served as universal languages for large clusters of nations. French was once Europe's international diplomatic language, and for centuries Latin was the favored language of scientists and scholars. Around Mediterranean ports *lingua franca,* Italian mixed with other tongues, became a common form of communication. Swahili, a Bantu speech mixed with Arabic, has long been the lingua franca of East Africa. Today, for better or worse, the new international language is English. In a few years there will be more non-native speakers of English than native ones! Only France is trying desperately to keep its fingers in the dike.

In the seventeenth century, among such philosophers as Descartes and Leibniz, and the Scotsman George Delgarno, the notion arose that perhaps a completely artificial language, based on logic, with simplified grammar and spelling, might serve to unify nations. This grandiose dream quickly gripped the minds of hundreds of linguistic cranks, who during the next three centuries proposed more than three hundred artificial or semi-artificial tongues.

The first major effort was the 600-page *Essay Towards a Real Character and Philosophic Language* (London, 1688), by John Wilkins, Bishop of Chester. His book was greatly admired by Leibniz. All of Wilkins's words are self-defining in the sense that they convey their triple classification as to genus, species, and subspecies. For example, his word for salmon is *zana—za* for fish, *n* for scaly, and *a* for red. The language was spoken and also written with symbols resembling modern shorthand. The Bishop wrote other eccentric works, including one arguing that the moon was inhabited by intelligent creatures. His philosophic language was caricatured by the French writer Gabriel de Foigny as an Australian tongue in his novel *The Adventures of Jacques Saleur* (1676).

The *Encyclopaedia Britannica* (14th edition) lists the following other totally synthetic languages: Solresol (1817), Lingualumina (1875), Blaia Zimondal (1884), Cabe aban (1887), and Zahlensprache (1901). Ro, invented in 1904 by Edward P. Foster, an American clergyman, had a monthly periodical called *Roia.* Solresol, created by musi-

cian Jean François Sudre, combined the syllables of the music scale (*do, re, mi, . . .*) to produce some 12,000 words. The plan was to send messages by playing a tune.

The *Britannica* does not mention Spokil, perpetrated in France by A. Nicolas in 1887, or Alwato, the creation of Stephen Pearl Andrews, a nineteenth-century American attorney and abolitionist. Alwato was part of Andrews's 761-page crank work *The Basic Outline of Universology* (1872), and he elaborated on it in other books. All his nouns ended in *o*. A human is *ho*, the body is *hobo*, the head is *hobado*, and society is *homabo*. A vegetable is *zho*, an animal is *zo*, a dead animal is *zobo*, and a live one is *zovo*.

Because no completely synthetic language has yet obtained much of a following, one might suppose that efforts of this sort have ceased. Not so! The TV series "Star Trek" has spawned a gutteral extraterrestrial language spoken by the warriors of the Klingon empire. It was invented in 1984 for the film *Star Trek III: The Search for Spock*, by Marc Okrand. (He has a doctorate in linguistics.) Poetry has been written and weddings performed in Klingon. "Star Trek" fans are rapidly mastering the language, much to Okrand's amazement, because he does not speak it. He designed the language as a joke—its word for "love" is "bang"—but now his peculiar language has developed a life of its own. There are newsletters in Klingon and an audiotape on conversational Klingon spoken by Michael Dorn, who plays a Klingon, Lieutenant Commander Worf, chief of security on the United Federation of Planets starship *Enterprise*, in "Star Trek: The Next Generation," the second "Star Trek" television series.

The Klingon Language Institute, headed by Lawrence Schoen, a psychologist at Chestnut Hill College, Philadelphia, is said to be working on a translation into Klingon of Shakespeare and the Bible.* The Bible will not be easy, because Klingons have no

Gerald Fried

words for such concepts as God, holy, atonement, forgiveness, compassion, or mercy. Is all this a put-on? The answer (in Klingon) is *HISlaH* (yes).

On a more useful level than totally contrived languages are the semi-artificial ones based on a blend of natural tongues. Of these, by far the most successful has been Esperanto, the brainchild of Lazarus Ludwig Zamenhof, a Warsaw eye doctor. His first book about it, *Lingvo Internacia* (1887) bore the pseudonym of Dr. Esperanto. The word means "one who hopes." It expressed Zamenhof's quixotic desire that Esperanto would become the world's second language.

Based on Europe's major tongues, Esperanto's 16 simple grammatical rules have no exceptions. Spelling, using 28 letters, is uniform and phonetic. As in Alwato, all nouns end in *o*. Adjectives end in *a*, verbs in *as*, and adverbs in *e*. A *j* at the end of a word indicates a plural. For example, *gradaj hundoj* means "big dogs."

More than 30,000 books, including Shakespeare, Dante, the Bible, and the Koran have been translated into Esperanto. A recent translation of Lewis Carroll's *Alice* books calls Humpty Dumpty *Homito Omleto*, meaning Little-Man Egg. Some hundred periodicals around the world have been written in Esperanto, one of the oldest issued by the Vatican. *Reader's Digest* publishes an Esperanto edition.

Here is the Lord's Prayer in Esperanto:

> Patro nia kiu estas en la ĉielo, sankta estu via nomo; venu regeco via; estu volo via, kiel en la ĉielo, tiel ankau sur la tero. Panon nian ĉiutagan donu al ni hodiaŭ; kaj pardonu al ni ŝuldojn niajn, kiel ni ankau pardonas al niaj ŝuldantoj; kaj ne knoduku nia en tenton, sed liberigu

*The Institute publishes a quarterly journal called *HolQeD* (from "Hol," meaning language, and "QeD," meaning science). It recently sponsored a contest for palindromes written in Klingon. For information, send an SASE to KLI, Box 634, Flourtown, PA 19031-0534.

nin de la malbono.

The movement peaked in the 1920s, especially among one-worlders, but even today about two million people read and speak Esperanto. Enthusiasts hold conventions here and there, and when traveling identify themselves to one another by green lapel pins shaped like stars. The movement continues to be popular in Europe, but in the United States it is now at a low ebb. In 1991 the Modern Language Association sponsored a seminar on Esperanto at its annual convention. No one showed up. Perhaps the main reason for its decline here is the inexorable rise of English as an international second language. In *The Shape of Things to Come* (Book 5, section 7), H. G. Wells predicts that Basic English (the 850 words selected by C. K. Ogden) will "spread like wildfire" and that by the year 2020 "hardly anyone" in the world will not speak and understand it.

The philosopher Rudolf Carnap learned to speak Esperanto fluently. In his autobiography (in *The Philosophy of Rudolf Carnap*) he says that Esperanto became for him a "living language." He cannot take seriously "the arguments of those who assert that an international auxiliary language might be suitable for business affairs and perhaps for natural science, but could not possibly serve as an adequate means of communication in personal affairs, for discussions in the social sciences and the humanities, let alone for fiction and drama. I have found that most of those who make these assertions have no practical experience with such a language."

To his surprise and dismay Carnap found that Ludwig Wittgenstein was violently opposed to any form of language that had not "grown organically."

The most popular semi-artificial language preceding Esperanto was Volapük—the word means "world speech"—invented in 1879 by Johann Martin Schleyer, a German Catholic priest.* It uses 27 letters, accents all words on the last syllable, and adds "ik" to all adjectives. The "iks" give it a strong icky sound. Some notion of its ugliness can be gained from Volapük's wording of the Lord's Prayer:

> O fat obas, kel binol in süls, paisaludomöz nem ola! Kömomöd monargän ola! Jenomöz vil olik, äs in sül, i su tal! Bodo obsik, vädeliki givolös obes adelo! E pardolös obes debis obsik äs id obs aipardobs debeles obas. E no obis nindukolös in tentadi; sod aidalivolös obis de bad. Jenosöd!

In France and Germany the Volapük cult gained a following of more than a million, with some two hundred Volapük societies meeting around the globe. After its third congress, in Paris in 1899, its leaders began quarreling over how to improve the language. This bickering created rival versions with such names as Balta, Spelin, Dil, Veltpail, Dilpok, Ilingua European, and others. The movement finally evaporated to be replaced by Esperanto.

I found the following anonymous doggerel in an old scrapbook:

> Take a teaspoonful of English,
> A modicum of Dutch,
> Of Italian just a trifle,
> And of Gaelic not too much;
>
> Some of Russian and Egyptian
> Add them unto the whole,
> With just enough to flavor,
> Of the lingo of the Pole.
>
> Some Singhalese and Hottentot,
> A soupçon, too, of French,
> Of native Scandinavian
> A pretty thorough drench;
>
> Hungarian and Syrian,
> A pinch of Japanese,
> With just as much Ojibway
> And Turkish as you please.
>
> Now stir it gently, boil it well,
> And if you've decent luck,
> The ultimate residuum
> You'll find is Volapük!

Many short-lived attempts from 1900 to the late fifties were made to improve Esperanto. They have such names as Perio, Ulla, Mondlingvo, Romanizat, Europeo, Nepo, Neo, Espido, Esperantuisho, Globaqo, and a raft of others. The most successful of these reform efforts was Ido—in Esperanto it means "offspring"—invented in 1907 by the French philosopher Louis Couterat. A monthly titled *Progreso* was written in Ido. Couterat regarded all Esperantists as depraved. In the first volume of his autobiography Bertrand Russell recalls Couterat complaining that Ido had no word similar to "Esperantist." "I suggested 'Idiot,'" Russell adds, "but he was not quite pleased."

Tinkerers with Ido, like the Esperanto tinkerers, soon splintered the movement into variant languages.

"More than 30,000 books, including Shakespeare, Dante, the Bible, and the Koran, have been translated into Esperanto."

These included Dutalingue, Italico, Adjuvilo, Etem, Unesal, Esperido, Cosman, Novam, Mundial, Sinestal, Intal, Kosmolinguo, and more.

Here are a few other semi-artificial languages developed from the 1880s to the early decades of this century: Weltsprache, Spelin, Blue, Anglo-franca, Mundolingue, Lingua komun, Idiom neutral, Reform neutral, Latinesce, Nov-Latin, Monario, Occidental, Europan, Optez, and Romanal.

Intelingua is of special interest because it was the creation of the great Italian mathematician Giuseppe Peano. It, too, gave rise to dozens of rival variants, such as Simplo, Latinulus, Interlatino, Panlingua, and others. In the mid-1920s Wilfred Stevens developed Euphony, a language that combined words from 30 natural languages.

***Klingon** continued on page 55*

*Volapük turns up in James Joyce's *Finnegans Wake* as Vollapluck (p. 34, line 5 from bottom), Volapuke (p.40, line 4), and Volapucky (p. 116, line 6 from bottom).

Notes on the Tryptophan Disaster

STEPHEN BARRETT

During the closing days of the last Congressional session, a bill was passed to prevent the Food and Drug Administration (FDA) from banning the sale of several categories of "dietary supplement" products. Passage of this bill capped an aggressive three-year lobbying campaign intended by the health-food industry to cripple FDA regulation of its products. Senator Orrin Hatch (R-Utah) championed the bill, an early version of which was described by the *New York Times* as the "1993 Snake Oil Protection Act."

The new law, called the Dietary Supplement and Health Education Act, defines dietary supplements to include vitamins, minerals, herbal products, amino acids, other dietary substances, and products derived from any of these substances. Even if a product or ingredient has no practical value in supplementing the diet, the FDA may not object to its sale unless it presents a "significant and unreasonable risk of illness or injury" or poses an imminent safety hazard. Prior to passage of this Act, the FDA was able to ban many types of worthless "dietary supplements" by designating them "unapproved food additives."

Permitting amino acids to be sold as "dietary supplements" is a great disservice to consumers. Amino acids are the building blocks of proteins. Individual amino acids are worthless for supplementing a person's diet because dietary deficiency of single amino acids does not occur. (Most Americans eat considerably more protein than they need. People who are grossly malnourished develop multiple shortages that should be remedied with foods, not individual amino acids.) Moreover, the use of single- or multiple-ingredient amino acid products is based on unsubstantiated beliefs that they are safe and beneficial as drugs or athletic enhancers. This article illustrates why amino acids should be regulated more tightly.

Regulation Fails

During the early 1970s, Richard J. Wurtman, M.D., professor of neuroscience at M.I.T. and Harvard Medical School, and his colleagues discovered that tryptophan levels normally control the production of serotonin, a brain chemical involved in sleep, mood, and appetite. At the time, he thought that tryptophan might become a legitimate drug that could help people sleep, diminish pain, and control mood and appetite. Pharmaceutical companies were unwilling to invest the money necessary to do safety and efficacy studies to determine whether L-tryptophan was safe and effective enough to be marketed as a drug. But supplement companies began marketing L-tryptophan as a "dietary supplement."

Until 1973, L-tryptophan and other amino acids were included on a list of food substances generally recognized as safe (GRAS) for use as dietary supplements. In 1973, the FDA revoked this GRAS status and stated that amino acids could not be marketed without approval as food additives. Since no approval was sought, the agency initiated seizure actions against two manufacturers of L-tryptophan products. The first case was dismissed because L-tryptophan had been accidentally included on a GRAS list published in 1977. The second case was withdrawn before a verdict was rendered, because the FDA believed that the judge was inclined to favor the manufacturer. The FDA also felt constrained by the Proxmire Amendment, a law passed in 1976 that curbed its ability to regulate vitamin dosage. Although amino acids were not included under this law, the agency took its passage as a signal that Congress did not want supplement products regulated without serious indications of danger to health.

Unhampered by the FDA, the health-food industry stepped up its marketing of L-tryptophan. Books, magazine articles, and many manufac-

turers promoted it with claims that it was useful against insomnia, pain, depression, premenstrual syndrome, and overweight, even though it had not been proved safe and effective for any of these purposes.

Disaster Strikes

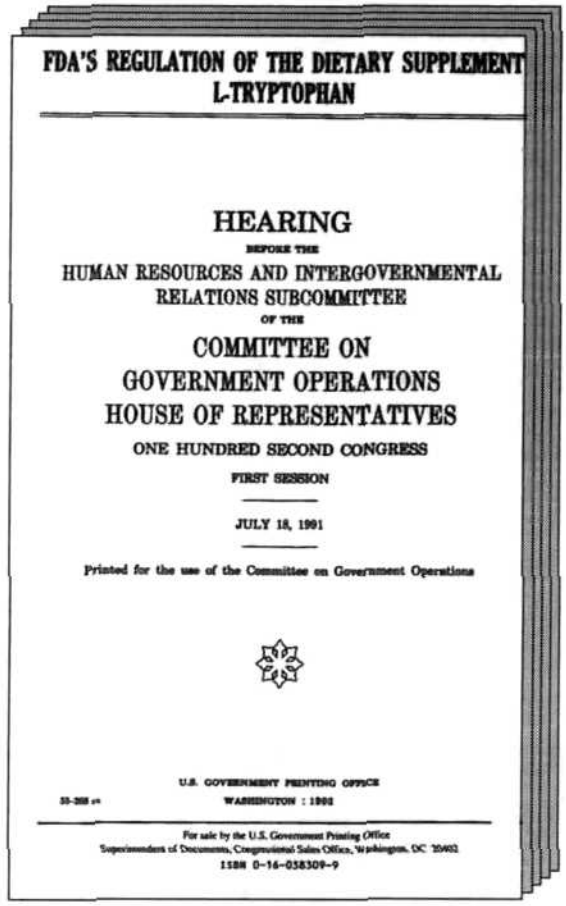
In 1989, an outbreak of eosinophiliamyalgia syndrome (EMS) occurred among L-tryptophan users. A hitherto rare disorder, EMS is a debilitating disease characterized by severe muscle and joint pain, weakness, swelling of the arms and legs, fever, skin rash, and an increase of eosinophils (certain white blood cells) in the blood. Over the next year, more than 1,500 cases and 28 deaths were reported to the U.S. Centers for Disease Control and Prevention. The actual toll probably was more than 5,000 people, many of whom suffered for years and are still disabled. When the link between EMS and L-tryptophan became apparent, the FDA quickly banned its sale.

The EMS outbreak was traced to the presence of an impurity in the L-tryptophan produced by Showa Denko K.K., a Japanese wholesaler that was the major supplier to American manufacturers. Showa Denko realized that it would not only be liable for damages to L-tryptophan victims but would probably be forced to reimburse American manufacturers for the costs of legal actions against them. Rather than working at cross-purposes with the manufacturers, Showa Denko agreed to shoulder all the expenses involved.

Minneapolis attorney Roger P. Brosnahan, who chaired the steering committee for all plaintiffs who brought cases in federal court, estimates that about 2,000 L-tryptophan victims (or their survivors) filed lawsuits or entered negotiations without suing. Most cases have generated little publicity because they were settled out of court with an agreement not to disclose the settlement terms. However, the total amount paid by Showa Denko is known to approximate $1 billion.

Responsibility Denied

Since General Nutrition Corporation (GNC) was named as a codefendant in many of the lawsuits, Brosnahan's steering committee investigated its marketing practices. In August 1992, Brosnahan's partner David L. Suggs deposed GNC board chairman Jerry D. Horn. After asking Horn about 25 government enforcement actions that had been taken against the company between 1969 and 1989, Suggs queried:


FDA'S REGULATION OF THE DIETARY SUPPLEMENT L-TRYPTOPHAN

HEARING

BEFORE THE

HUMAN RESOURCES AND INTERGOVERNMENTAL RELATIONS SUBCOMMITTEE

OF THE

COMMITTEE ON GOVERNMENT OPERATIONS HOUSE OF REPRESENTATIVES

ONE HUNDRED SECOND CONGRESS

FIRST SESSION

JULY 18, 1991

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In 1991, the chairwoman of a Congressional subcommittee said that the tryptophan tragedy would not have occurred if the FDA had done more to stop its sale. Yet in 1994, Congress passed a law weakening the FDA's regulatory powers.

Q. Is it your testimony that . . . it's perfectly okay for GNC to put products on its shelves, to sell pills to people if those pills have no benefit?

. . .

A. We make the assumption that they make the decision based on some perceived benefit.

Q. Isn't it a fact that . . . whether or not it is going to benefit your body is a question of science and a question of fact?

A. Limited science.

Q. Don't you think that GNC, before it sells pills for people to take, ought to make some evaluation of the science and the facts to . . . determine whether there is in fact some benefit in people taking those pills into their bodies?

A. No. I would say no, we should not. We are not compelled to do that.

Q. So far as you're concerned, and . . . speaking as the chairman of the board of GNC, it's perfectly all right for GNC to sell people pills to take even if those pills have no benefit whatsoever, there's no scientific benefit. Is that correct?

A. That' s not what I said.

Q. Well, are you saying, then, that there should be a benefit?

A. The benefit to them is from their perception, their need, their diet, how they're trying to supplement. We don't know each individual's supplement needs to their diet, if any.

Q. So in other words, it's OK for GNC to sell pills for people to take them into their bodies . . . as long as some customer is under the belief or per-

---

Stephen Barrett, M.D., a retired psychiatrist and nationally known consumer advocate, is coauthor/editor of 36 books on health topics. His most recent work is The Vitamin Pushers: How the "Health Food" Industry Is Selling America a Bill of Goods *(Prometheus, 1994).*

Leon Jaroff, Steve Allen, Herbert Hauptman, many others to dedicate new CSICOP Headquarters June 9

Reader Support Needed to Close Final Construction Cash Gap

Leon Jaroff, Fellow of CSICOP and science editor emeritus of *Time*, will join entertainer Steve Allen, Nobel laureate in Chemistry Herbert Hauptman, and eight members of the CSICOP Executive Council in dedicating the Center for Inquiry, Phase II: new headquarters of the Committee for the Scientific Investigation of Claims of the Paranormal. Ceremonies will be held on Friday, June 9, 1995.

The Hon. Stan Lundine, former Lieutenant Governor of the State of New York, will dedicate the structure. Herbert Hauptman, a professor of biochemistry at the State University of New York at Buffalo, will present a keynote address, "Defending Reason in an Irrational World." Steve Allen, legendary creator of the original "Tonight Show" and "Meeting of Minds," will present a gala performance at the State University of New York's Center for the Performing Arts. CSICOP Executive Council members James Alcock, Barry Beyerstein, Ray Hyman, Philip J. Klass, Joe Nickell, Lee Nisbet, Bela Scheiber, and Carol Tavris will present a workshop titled "Skepticism: An Agenda for the Future."

Also participating will be Paul Kurtz, chairman of CSICOP; Kendrick Frazier, Editor of the SKEPTICAL INQUIRER, and representatives of national skeptical organizations from Germany and Mexico.

At press time, a limited number of registrations were still available for this once-in-a-lifetime milestone for the skeptical movement; call (716)636-1425 for information.

The Center for Inquiry is a 15,000-square-foot educational and administrative center located adjacent to the State University of New York at Buffalo's Amherst Campus, the largest campus of the nation's largest state university system. The building will house all of CSICOP's Western New York editorial, administrative, and warehouse operations on a single compact and efficient campus. More important, the skeptical movement will benefit from an impressive headquarters institution that includes a 50,000-volume capacity library complex, meeting and seminar rooms for up to 200 people, audio and video production spaces, and other vitally needed capabilities.

Famed writer and critic Martin Gardner chaired CSICOP's portion of a $3.9 million capital drive to construct and endow the new Center. The "Price of Reason" Capital Fund Drive was the most ambitious fundraising project in the history of the world skeptical movement. By one measure it has significantly exceeded its goal.

YOUR GIFT IS STILL NEEDED TO CLOSE CONSTRUCTION CASH GAP

A higher-than-expected proportion of "Price of Reason" giving took the form of deferred gifts. As a result, even though the drive exceeded its target, CSICOP remains $135,000 short of the cash it needs on hand *right now* to pay for construction and equipment. A line of credit has been established to assure that CSICOP meets all its debts in a timely manner. But borrowing means paying interest, consuming funds that might otherwise go to publish the SKEPTICAL INQUIRER and support growth of the skeptical movement.

At press time, the new Center for Inquiry was almost complete.

Reader support has been outstanding. But we need one final effort to reduce or eliminate borrowing. If you have not yet made your commitment to the "Price of Reason" campaign, your gift will never mean more than right now. Please make a three-year pledge, or a gift of securities or cash today. A pledge card is bound into this magazine for your convenience.

"All skeptics can take pride in the Center for Inquiry," said CSICOP Chairman Paul Kurtz. "After we conquer the last remaining hurdle—our construction cash gap—we can look forward to a bright new future for the skeptics movement nationally and worldwide."

ception that they're going to get some benefit? . . .

A. I'm telling you that it's up to the individual. . . . They make the decision how they want to supplement their diet.

. . . .

Q. Would you agree that your company has an obligation to test . . . products before they're sold for human consumption to determine whether they are in fact beneficial?

A. No more than a grocery store does foods coming in. We're a retailer.

Q. You also manufacture products, don't you?

A. We manufacture a portion of our line.

Q. Well, with respect to the products that you manufacture, would you agree that GNC has an obligation to test those products to make sure they are in fact beneficial?

A. You can't test whether an apple a day really keeps the doctor away. There's no way to test that I know of.

. . . .

Q. Have you ever heard of things like safety studies or toxicology studies or . . . clinical studies? . . .

A. Some.

Q. And what do those terms relate to?

A. I believe to the drug industry. . . . We're not in the drug business, we're in the food business as defined by the FDA.

Details of L-Trp. Health Food in U.S.A.

How L-Trp Health Food is used in U.S.A., from the literature.

Appeal as Natural Tranquilizer or Anti-Depressant (some sleeping effect)

- **Calms down nervous or stressed people**
- **Revives spirits of depressed people**
- **Induces sleep**

There is no side effect, no addiction, no withdrawal distress. When an excessive amount is taken, it will be naturally excreted out of the system (same as Vitamin C).

Examples of health food application

1) **People who don't have appetite in the morning, and who can't sleep well at night**
2) **Athletes who are feeling stressed before big sporting events[1]**
3) **Children who are troubled with teenage problems and studies[1]**
4) **Businessmen who are working on a big project[1]**
5) **People who are getting nervous with business interviews[1]**
6) **Students who are cramming before an examination[1]**
7) **People who have various worries[1]**
8) **Travelers who are troubled with jet lag[1]**
9) **People whose biorhythm is disturbed due to the change of an environment[1]**
10) **Insomnia patient[2]**
11) **Manic-depressive patient[2]**
12) **Stressed patient[2]**

[1]Semi-healthy people
[2]The sick

Portion of translated internal memo indicating that Showa Denko knew that L-tryptophan was being used for pharmacologic purposes in the United States.

More Mischief Revealed

Showa Denko also maintained that its L-tryptophan had been marketed as a "dietary supplement." However, company documents gathered by Brosnahan and his colleagues indicate otherwise:

- A 1984 memo stated: "If you take a look at each company which constitute the [nutritional supplement] market, they are positioned ambiguously in between medical and food manufacturers/distributors. They get around the restrictions on 'Drugs' and sell 'food supplements.'"
- An undated internal memo (shown above) contained a long list of other reasons why "semi-healthy people" and "the sick" might purchase L-tryptophan products.
- An undated brochure stated that L-tryptophan "has antistress function and minor tranquilizer effect" and had pharmaceutical application as a "sleep inducer" and "antidepressant."

Other documents revealed that in 1988 Showa Denko became aware that its L-tryptophan contained impurities that were unidentified and therefore potentially harmful. The company then began using a new strain of bacteria modified from previous strains by means of biotechnology. (Bacteria were used to synthesize the L-tryptophan.) Showa Denko did not notify the FDA about the impurities or its modification of the manufacturing process. Nor did the company test the newly made product for safety in humans, even though the FDA had previously cautioned that biotechnologically modified products should be thoroughly tested before public distribution. In fact, instead of increasing filtration to remove the impurities, which would decrease the amount of L-tryptophan produced, Showa Denko continued full-speed production to meet high market demand.

The tryptophan tragedy would not have occurred if the FDA had been able to ban these products or prosecute manufacturers who marketed them improperly. But Congress, in its infinite wisdom, has given the health-food industry more freedom instead of less. □

Recovered Memories Cross the Oceans

ROBERT SHEAFFER

The American practice of "recovering memories" of all manner of unspeakable abuse has leaped the Atlantic, and the Pacific as well. In Britain a new group called Accuracy About Abuse has been formed to promote belief in "recovered memories." Its founder is Marjorie Orr, a Jungian psychiatrist and professional astrologer who writes horoscopes for the *Daily Express* and *Woman's Journal*.

Replying to skeptical members of the False Memory Syndrome Society over the Internet, Orr explained how "serious astrology is a reef which the high and mighty of the scientific establishment have come to grief on before. . . . I would not volunteer it but since you raise the question—a personal birth chart will certainly show up clearly and in some detail the psychological dysfunctions which would indicate that someone was likely to abuse or had been abused." If this is correct, then a lawyer might successfully argue: "My client cannot be held accountable for these acts, since his moon is in Leo, in conjunction with Neptune." Orr also noted: "As Liz Greene, the British psychological astrologer, also an analyst, remarked—the astrology is like the road map. The therapy is the hard work of walking that road."

Yet another group probing deeply into the British psyche calls itself Primary Cause Analysis. According to an article last year in London's *Sunday Times,* this group, which "has been secretly training hypnotherapists in Britain," claims that virtually everyone has been sexually abused as a child. According to Primary Cause Analysis, there are 39 kinds of child sexual abuse that were performed openly as rituals until 2800 B.C., when society—presumably every society at once—banned them. Practically all of the problems that cause people to seek therapy are the result of repressed memories of abuse at the hands of mothers and fathers, as are many other conditions, including acne, alcoholism, asthma, autism, backache, conjunctivitis, diabetes, halitosis, hay fever, and myopia, to name a few. The group's founder, the late James Bennett of New Zealand, taught that 98 percent of infant crib deaths were the result of sexual abuse. Therapists who are trained in Primary Cause Analysis are required to sign a statement promising to keep secret the group's teachings about sexual abuse.

Back in North America, the Ontario provincial government contributed $15,000 to a "Surviving Ritual Abuse" conference held last January in Thunder Bay. Organized by a "survivors" group called Stone Angels, the conference revealed to the world how the epidemic of satanic molestations is, in fact, being orchestrated by the Masons. Stephen Kent, of the Department of Sociology at the University of Alberta, told CBQ-Radio that, according to some of the accounts, the abuse seems "to have taken place in buildings which sound like they were lodges. Moreover, a lot of these accounts involve group abuse, and some people have very strong suspicions that the network in which their, in most cases, fathers allegedly moved were Masonic networks. So a lot of people believe that other alleged abusers were also Freemasons." He hastened to explain, however: "I'm sure that ordinary Masons would be appalled to hear the kind of stories that I have heard. In no way, even in a worst-case scenario in which some of these accounts would be more or less true, in no way would I suspect that the mainstream Masonic organization would in any way be involved in these things."

Peter Toohey, a Thunder Bay Mason and former police officer, was furious at being excluded from a taxpayer-funded conference that purported to discuss "Masonic ritual torture." He has protested to local elected officials and says he is considering legal action for slander against the group, stating that the Masonic order contributes more than $545 million dollars a year to

charitable organizations.

In Chicago, Kimball Ladien, a psychiatrist who once sat on the Illinois State Task Force on Ritualistic Abuse, ran for mayor in the Republican primary as the "Anti-Cult Candidate." According to a story in the February 17 *Chicago Reader,* Ladien helped draft recently passed anti-ritual-abuse legislation that makes it a felony to place "a living child into a coffin or open grave containing a human corpse or remains."

Ladien and several of his colleagues at Rush-Presbyterian-St. Luke's Medical Center are being sued by a woman whose story is told, under the pseudonym "Anne Stone," in the book *Making Monsters,* by Richard Ofshe and Ethan Watters. She alleges that she was persuaded by therapists at that institution that she had been "the High Priestess of an international Satanic order," in which her family had participated for 400 years. Her complaint against Ladien alleges that his "hypnotic sessions" helped persuade her that "she had over 300 alternate personalities as a result of extended and repeated sexual and other traumatic abuse as a child, including the participation in ritual murders, cannibalism, satan worship, and torture by members of her family."

Ladien regrets the suit. "I feel somewhat betrayed," he said. "I spent a lot of personal time with [Anne] and the family doing my utmost to help them." It would seem, however, that the family does not view its ordeal involving extended psychiatric hospitalization and accusations of ritual cannibalism and torture as being "helpful." As if this were not bad enough, the anti-cult candidate was handily defeated in the primary election by Ray Wardingley, formerly known professionally as Sparky the Clown.

• • •

A correspondent in Sri Lanka sent us copies of the "Marriage Proposals" pages from the *Sunday Observer,* the major English-language newspaper there. In that country, where marriages typically are arranged by families with strict attention paid to education, caste, and dowry, it appears that perhaps the most important factor of all is one's natal horoscope:

> Durawe [caste] Buddhist parents seek professionally qualified partner late 30s for Accountant daughter owning car Colombo residential property other assets caste immaterial. Horoscope required.
>
> Buddhist parents seek a pretty partner for their son 34 years 5'6" height, an Executive in an airline. Horoscope essential.
>
> Brother seeks a suitable partner for a Canadian citizen Tamil Hindu sister 31 fair, pretty, 5'1" B.Sc. holding a good position in Canada. Caste creed and religion immaterial. Full details and horoscope please.
>
> Govi Buddhist parents seek English educated businessman/professional of good background 36-46 years for their attractive educated daughter (36) 5'4" holding prestigious academic position receiving substantial salary possessing fixed deposits, jewellery etc. worth over seven lakhs. Caste immaterial if horoscope background exceptionally compatible.
>
> Respectable Kandyan Govi Buddhist parents invite proposal for pretty bride of similar status for son Executive in a prestigious firm fair slim 5'4", 28, Saturn 8th house.

Meanwhile, here in North America we choose marriage partners on the basis of something at least as elusive as astrology: "love." It is not always clear which approach is the more irrational. □

James Becker

A Psychologist Studies the 'Shameless' Talk Shows, and She's Angry

C. EUGENE EMERY, JR.

I dated Siamese twins.
I slept with Bigfoot, too.
Get me on Sally Jessy.
Put me on Donahue.
'Cause I wanna tell the world about it
*Right now.**

Vicki Abt vividly recalls the first time she tuned in to the "Sally Jessy Raphael" talk show. Abt found the hostess warning viewers that her program that day was not for the squeamish. Abt, a not-so-squeamish social psychologist at Penn State University, stuck around.

"As I'm watching, she's showing a videotape of a murder," said Abt. "The kid was taped to a pole, they were shooting him, they tortured him, and they shot him to death. The second time they shot him, he moaned and I knew it was real. I freaked out. I was screaming. I was crying. I said, 'I can't believe that she's showing this. What is the point of this?'"

The more Abt thought about it—not just the violent images but the absence of a constructive motive for showing the tape—the angrier she became. "It gets people upset, but it doesn't tell them what to do prosocially afterwards, except to turn to a commercial for Nutri/System so you can worry about your diet," said Abt.

She tried to do something. Abt wrote a two-page letter to Raphael "outlining exactly what was wrong with what she was doing and how dangerous it was." Abt never got a response.

Talk-show hosts like to say they get viewers interested in important issues facing society. Raphael's show did *exactly that.* Abt, who studies how moral principals are shaped by society and the media, got interested in Raphael and her ilk.

My dog's a narcoleptic.
My mom's a circus freak.
I gotta get a spot on
Geraldo's show this week.
'Cause I wanna tell the world about it
Right now.

Using that two-page letter to Raphael as an outline, Abt began a content analysis of 60 hours of television talk shows. The result was "The Shameless World of Phil, Sally and Oprah: Television Talk Shows and the Deconstructing of Society," an essay written with Penn State colleague Mel Seesholtz and now published in the *Journal of Popular Culture,* 28(no. 1), Summer 1994.

"I thought maybe this (the Raphael show) was a fluke," said Abt, who also looked at how such hosts manipulate their audiences and how they make the shows work.

She discovered it was no fluke. She concluded that talk shows:

• Consistently play up the freakish nature of human existence, giving it national prominence and desensitizing viewers to its social implications. As long as they are willing to talk, child molesters, people with sexual quirks, *folks with criminal records become* recast on these shows as "victims," who can instantly amend for their sins by publicly confessing and apologizing to their victims.

• Provide a voyeuristic look at the deepest personal secrets of dysfunctional relationships or criminal acts, often without giving viewers the opportunity or a feeling of obligation to help. While some talk-show hosts passionately argue that they improve society by forcing the public to confront uncomfortable issues that should be tackled, Abt says the argument is shallow and self-serving. Real-life problems are solved when flesh-and-blood people (who can't escape a problem by changing channels) get involved in the solution. "The abstract concept of altruism is grounded either in experiences that evoke empathy or in real physical consequences. Television talk shows create an ersatz community, without any of the social and personal responsibilities that are attached to real life."

*Song lyrics by "Weird Al" Yankovic.

Patrick Hubenthal

• Provide little or no reliable information to help viewers put what they are seeing into a rational, intellectually honest context, a conclusion that will come as no surprise to SKEPTICAL INQUIRER readers concerned about the way the talk shows favor pseudoscience over serious research. (See my column in the May-June issue, and Paul Kurtz's column in the January-February issue, for example.) In a program featuring "skinheads," she wrote, "No one seriously attempted to correct their inaccurate rendering of historical events, or challenge their reliance on pseudo-biology during their diatribes against Jews and other, unrelated minority groups."

Thus, Abt warned, talk shows are helping to misshape our culture by misleading viewers.

"Television talk shows create audiences by breaking cultural rules, by managed shocks, by shifting our conceptions of what is acceptable, by transforming our ideas about what is possible, by undermining the bases for cultural judgment, by redefining deviance and appropriate reactions to it, by eroding social barriers, inhibitions and cultural distinctions," she said in the opening paragraph of her essay.

It was a powerful, topical, controversial attack on some of the nation's best-known celebrities and the role they play in society. It wasn't surprising that Abt would be invited to get a firsthand look at life on a talk show.

My wife ran off with Elvis.
My boss shaved off my hair.
I've got a thing for poodles
And rubber underwear.
And I wanna tell the world about it
Right now.

Abt knew better than to expect a reserved, thoughtful debate of the issues between the experts when she agreed to discuss the points she raised on "The Oprah Winfrey Show." She wasn't mistaken.

Instead of an intellectual dialogue, Oprah turned the program into the typical talk-show spectacle, with too many guests and too little time for them to provide anything more than soundbites.

Joining Abt for the two-hour show, aired September 12 and 13, 1994, were *Washington Post* TV critic Tom Shales (who called talk shows "the new pornography of our time" because they turn the audience into voyeurs), *People* magazine TV critic David Hiltbrand (who called Abt's conclusions "preposterous" and argued that "people watch TV with a built-in moral sense"), and groups of viewers from San Francisco, Atlanta, and Boston. Members of Oprah's Chicago audience alone had collectively watched 647 hours of talk shows in one week.

Some audience members said they simply watch such shows to be entertained. Others said they liked the programs because they believe the shows provide important information.

One teenager who expressed the latter view went on to criticize how the shows portray teenagers as "all drug addicts, dropouts, pregnant, or what have you." It didn't seem to dawn on her that if talk shows distort reality in an area where she has some personal experience, the genre might be giving unreliable information in other areas as well.

With Abt pressing for talk shows to feature more debates among experts who actually know what they're talking about, and Shales saying he'd "like to see more smart people on TV, fewer ordinary people and more extraordinary people," Winfrey closed the show by lamenting that "a lot of times when it comes down to what people actually watch, the very programs they criticize are the ones that get the highest ratings."

I had a close encounter.
I never chew my food.
I got eleven nose jobs.
I yodel in the nude.

Gene Emery is the science writer for the Providence Journal, *75 Fountain St., Providence, RI 02902.* *"Talk Soup" lyrics are from the "Weird Al" Yankovic album "Alapalooza" and are reprinted with permission. Abt's essay in the* Journal of Popular Culture *(28, no. 1, Summer 1994) is available for $10 from Bowling Green State University Popular Press, Bowling Green, OH 43403. Transcripts of the September 12 and 13, 1994, Oprah Winfrey shows and the February 7, 1995, Jerry Springer show are available from Burrelle's Transcripts at 1-800-777-TEXT. A transcript of the September 16, 1994, "20/20" program is available from Journal Graphics at 1-800-825-5746.*

And I wanna tell the world about it
Right now.

Abt has not been alone in her criticisms.

When "20/20" took a behind-the-scenes look at talk shows, the ABC-TV news magazine (aired September 16, 1994) revealed how one couple, Jennifer and Uriel Soto, managed to get on three different shows with three different stories in a matter of weeks. On "The Ricki Lake Show," they lied by billing themselves as married cousins. Jennifer Soto said the show's producers never asked any questions.

The "20/20" show also featured three men who had pretended to be a gay love triangle during a different Lake show. They alleged that a producer fed them titillating lines to use on the program, a claim the show denies.

Even when the shows have reason to suspect that a guest is lying, it doesn't matter. On "The Montel Williams Show," Jerome Stanfield, a man who later claimed that a producer for the show had encouraged him to lie, told Williams that he was a serial rapist. Although police were unable to confirm Stanfield's story, Williams aired the show anyway. He billed it as an "exclusive," explaining to his audience that, although questions had been raised about the honesty of the guest, "we have no information at this time that leads us to believe he is *not* telling the truth. And because of that we feel it is our duty and our responsibility to broadcast the program out of concern for public safety."

I have no genitalia.
I sold my kids for cheese.
I love my blow-up doll so
Bring out those cameras, please.
'Cause I wanna tell the world about it
Right now.

Despite the criticisms and the exposés of the way these programs stretch the truth, there's little evidence that things have changed in the trashy world of TV talk shows.

Self-proclaimed psychics, promoters of quacky medical treatments, miracle mongers, and UFO enthusiasts usually get to tell their stories on these shows with a minimum of criticism.

For example, hostess and fitness guru Susan Powter spent part of February fawning over the "psychic" Char, showing how a box of burning herbs placed on the abdomen can help premenstrual syndrome sufferers, and trying to scare parents away from getting their children vaccinated.

In another case, talkmeister Jerry Springer brought a woman named Shannon onto his show so her husband could shock her on national TV with the news that he had a long-standing affair with the baby-sitter of the couple's two children. Then, with Shannon already weeping, Springer brought on Cindy, the baby-sitter, who went into further detail about her ongoing relationship with Shannon's husband.

But Shannon, her husband, and the babysitter turned out to be three Toronto-based comedians who reported that "The Jerry Springer Show" had misled Shannon in an effort to humiliate her on national television. Then a Springer spokeswoman had the nerve to threaten to sue the comics for breaking a written promise to tell the truth on the program.

"If I had really been this woman," Suzanne "Shannon" Muir told the *Toronto Star*, "they would have ruined my life."

And in a case that brought haunting echoes of the video that originally prompted Abt to examine what talk shows do to society, police in Michigan charged Jonathan Schmitz with murder after "The Jenny Jones Show" brought Schmitz, 24, on the program and told him he would get the chance to meet a secret admirer on national TV.

The secret admirer of Schmitz, a heterosexual, turned out to be a man—32-year-old Scott Amedure. As the show was being taped, Schmitz was stunned to learn that he was the object of a homosexual crush.

Three days later, after also reportedly receiving an anonymous sexually suggestive note, Schmitz bought a shotgun, went to Amedure's house, and shot him twice, according to police. Jones and her organization have denied any responsibility for Amedure's death. The program never aired.

The murder may make talk-show hosts and their producers reexamine what they're doing, but probably not for long.

Jones's program began getting good ratings only after she began trying to shock viewers and guests. The lesson isn't lost on the industry, which seems ready to do almost anything to raise the level of sensationalism in hopes of attracting a bigger share of the audience.

With 15 talk shows already on the air, television executives hawking new programs are promising even more sensational fare when the new season begins in September.

"There are going to be 20 or so new shows that are worse than the ones I was criticizing," says Abt. "These days, saying you had sex with your father gets almost no reaction. Now you have to have had sex with three fathers. I think the public thinks these shows are telling them something relevant, but the audience has been so brutalized, they need more and more to get outraged."

"The reason these talk shows are so popular is you don't have to educate people to be voyeurs, you don't have to educate people to love gossip, to like freak shows," comments Abt, adding that the same thing holds true for programs featuring psychics, UFO abductees, and the like.

In the end, it's more than the fault of the producers and hosts. The problem lies with the people who choose to watch and believe such shows.

"Oprah's argument to me was that every time she does a public-interest show, her ratings go down the toilet. She's certainly right. But that doesn't excuse it," says Abt. "You can also make a lot of money selling crack cocaine, but I don't do it."

I'm just a cross-dressin'
alcoholic neo-Nazi
Porno star, as you may have guessed.
And I'm really gonna feel
a whole lot better
If you let me get this thing off my chest.
Talk Soup. Talk Soup.
Listen to me, listen to me, listen to me.

The Roswell Incident and Project Mogul

Scientist Participant Supports Direct Links

DAVE THOMAS

As reported in the January-February 1995 SKEPTICAL INQUIRER, a September 1994 Air Force report strongly supported the theory that the "UFO" debris found by rancher Mac Brazel in 1947 northwest of Roswell, New Mexico, was in fact a remnant of a balloon flight launched as part of a top-secret program called Project Mogul. The possible connection between the Roswell Incident and Mogul was first realized by researcher Robert G. Todd, and independently by Karl T. Pflock.

Recently, Charles B. Moore, one of three surviving Project Mogul scientists identified in and interviewed for the Air Force report, spoke to the New Mexicans for Science and Reason (NMSR) in Albuquerque. He discussed the background of the project, the New York University (NYU) balloon flights, and the Roswell connection. He provided new details that would appear to virtually clinch the idea that the debris Brazel found was indeed from one of the Project Mogul flights that Moore helped launch.

What follows is based on Moore's presentation, his answers to audience questions, subsequent meetings and discussions with him, documents he provided, and a monograph he is preparing on these flights.

Moore, professor emeritus of physics at New Mexico Institute of Mining and Technology in Socorro, was a graduate student working for NYU back in 1947. The Mogul project was so classified and compartmentalized that even Moore didn't know the project's name until Robert Todd informed him of it a couple of years ago. The unclassified purpose of the project was to develop constant-level balloons for meteorological purposes.

Its classified purpose was to try to develop a way to monitor possible Soviet nuclear detonations with the use of low-frequency acoustic microphones placed at high altitudes. No other means of monitoring the nuclear activities of a closed country like the USSR was yet available, and the project was given a high priority. One of the NYU tasks was the development of constant-level balloons for placing the acoustic microphones aloft. After some preliminary flights in Bethlehem, Pennsylvania, in April 1947, which failed due to high winds, the project moved to New Mexico.

In June and early July 1947, numerous NYU balloon flights were launched from Alamogordo Army Air Field in New Mexico. Some of these flights consisted of very long trains containing up to two dozen neoprene sounding balloons, having a total length of more than 600 feet.

Moore makes a strong case for the hypothesis that NYU Flight #4, which he helped launch on June 4, 1947, was the source of the debris Brazel found on the Foster ranch, and therefore the source of the "Roswell Incident" itself. Many of the materials used in Flight 4 bear striking similarities to pieces of the Roswell debris. A diagram of an earlier, similar flight, Flight #2 (launched April 18, 1947, from Bethlehem, Pennsylvania) appears in Figure 1. No such diagram is available for Flight 4; since no altitude data were obtained for it, it was not included in formal NYU reports. However, Moore says the configuration for Flight 4 was quite similar to that shown. The large octahedral objects at top left and bottom middle are radar reflectors, which were used for tracking. Several small aluminum rings for handling the lines are indicated; the "payload" (a sonobuoy) was supported by slightly larger rings. The cluster of neoprene sounding balloons extended for hundreds of feet in flight.

The debris Brazel picked up—and which was later taken to Fort Worth, Texas, for inspection by Brigadier General Roger Ramey, the Air Force commander there—matches NYU Flight 4 in several different ways. Some of the debris consisted of patches of a smelly, smoky gray, rubber-like material,

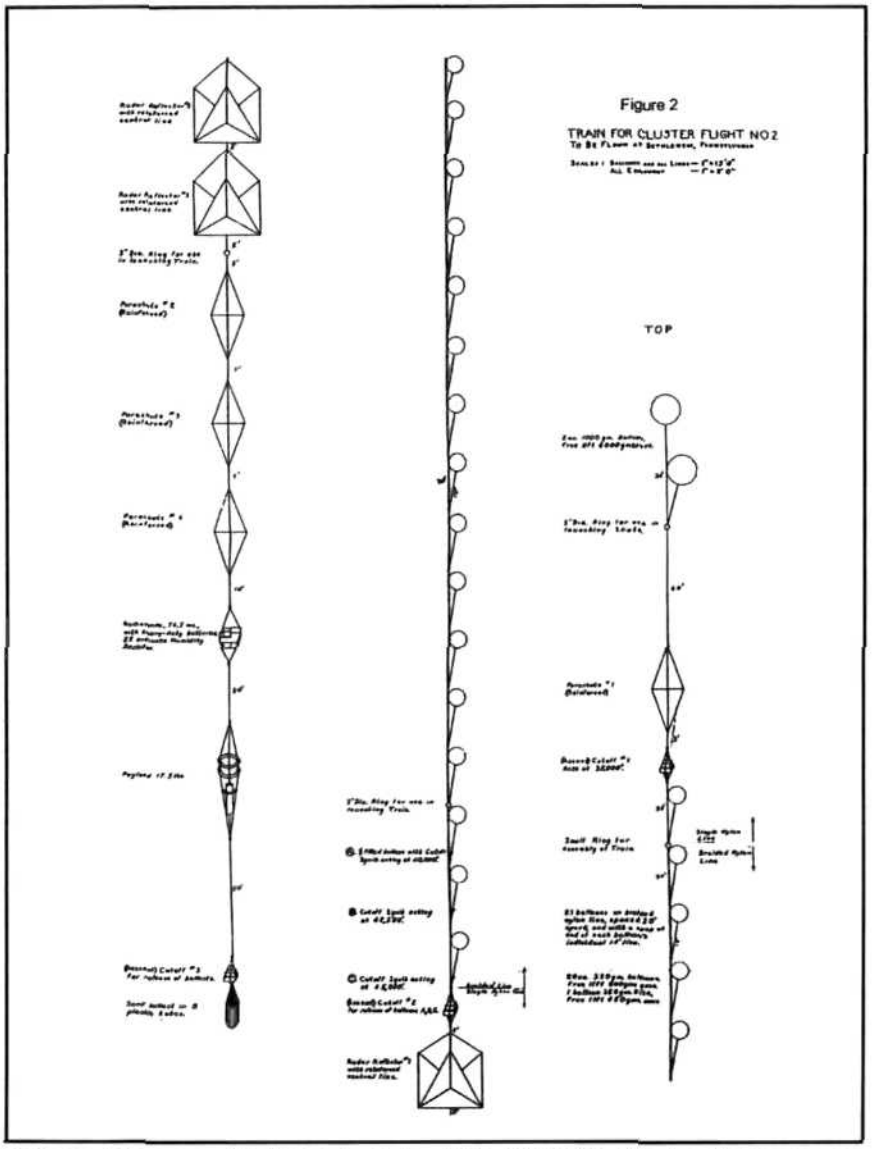

FIGURE 1. Diagram of balloon train for NYU Flight #2. Charles B. Moore says the configuration for Flight #4 was quite similar.

which is consistent with the neoprene balloons used in NYU Flight 4. Much of the Roswell debris—sticks, metallic paper, and strangely marked tape—is similar to material used for the radar reflectors. When Warrant Officer Irving Newton saw the debris in General Ramey's office, he recognized it as pieces of a radar target. Moore points out that the Ramey photographs show parts of more than one reflector; Flight 4 contained three Signal Corps ML-307B RAWIN targets.

Many witnesses of the debris described tape with flower designs or hieroglyphics on it. Moore recalls that the reinforcing tape used on NYU targets had curious markings. "There were about four of us who were involved in this, and all remember that our targets had sort of a stylized, flowerlike design. I have prepared, in my life, probably more than a hundred of these targets for flight. And every time I have prepared one of these targets, I have always wondered what the purpose of that tape marking was. But . . . a major named John Peterson, laughed . . . and said 'What do you expect when you get your targets made by a toy factory?'" Figure 2 shows a diagram of Moore's recollection of the flowery design.

The radar targets contained small eyelets. Moore showed the NMSR audience a similar target with the eyelets (Figure 3). In an article in the *Roswell Daily Record* on July 9, 1947, rancher Brazel described the debris as having no strings or wire, but as having eyelets for some sort of attachment.

While many UFO proponents claim the wreckage shown in General Ramey's office was just a weather balloon switched for the "real debris," Moore pointed out that the radar targets used by NYU were unlike anything flown in New Mexico before and that "they were not available in Fort Worth to be substituted for the debris in General Ramey's office." Warrant Officer Newton was able to recognize the debris in General Ramey's office because he happened to have used an early version of the same targets while serving as a weatherman in Okinawa. The earlier-model targets Newton used did not have the reinforcing tape with the pinkish-purple flower designs.

Brazel's daughter, Bessie Brazel Schreiber, in a 1979 interview conducted by author William Moore (no relation to Charles B. Moore), described some aluminum ring-shaped objects in the debris that looked like pipe intake collars or the necks of balloons. (The mention of the rings appears in William Moore's transcript of the interview, but was not included in his book *The Roswell Incident*.) She estimated that they were about 4 inches around, and said she could put her hand through them. Charles Moore points out that Flight 4 carried several 3-inch-diameter aluminum rings for assisting with the launching of the balloon train, as well as larger rings used to hold the sonobuoys. These were cut from cylindrical tubing stock, and then chamfered to prevent damage to the ropes.

Sheridan Cavitt, the CIC (Counter-Intelligence Corps) officer who accompanied Major Jesse Marcel to the debris

Dave Thomas is a physics and mathematics graduate of New Mexico Institute of Mining and Technology, and is currently a senior scientist at Quatro Corporation in Albuquerque, New Mexico. He is vice president and communications officer of New Mexicans for Science and Reason.

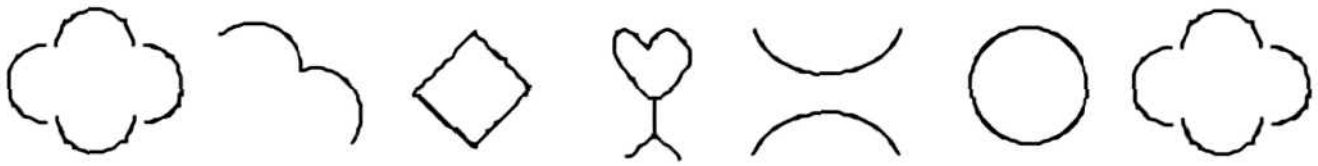

FIGURE 2. "Abstract flower-like designs" on NYU radar targets

field, described a black box in the wreckage. Moore says the NYU crew routinely packed batteries for the acoustic equipment in black boxes. There has been some speculation that the black box might have been a radiosonde, but Moore pointed out that radiosondes are usually white to prevent absorption of heat.

On June 4, 1947, Flight 4 was launched, and tracked as far as Arabela, New Mexico, only 17 miles from the location of the debris field on the Foster ranch. Flight 4 was still aloft when the batteries ran down, and contact was lost. Brazel reported that he found the debris on the ranch on June 14, 1947, although most UFO proponents put the time of this discovery as a few weeks later, in early July. Brazel didn't take the debris into Roswell until July 7, 1947, by his own account; this date is disputed as well.

Recently, Charles Moore has developed a brand-new line of evidence even further supporting a link between the Roswell Incident and Project Mogul. UFO researcher Kevin Randle recently provided Moore with National Weather Service wind data for early June 1947. Moore, who has lived and breathed atmospheric physics most of his adult life, analyzed this data in detail. His analysis deals with three NYU flights : Flight 4 (June 4, 1947), Flight 5 (June 5), and Flight 6 (June 7). The Weather Service wind data are compatible with what is called a baroclinic weather system moving through the area. As this "trough aloft" slowly passes by, the winds aloft will shift from blowing toward the northeast, then toward the east, and then toward the southeast. At very high altitudes, however, this type of system produces high-level winds in the upper troposphere at cross directions to those at lower levels. Furthermore, the prevailing winds in the stratosphere during the summer months blow toward the west, while those in the transition region just above the tropopause blew toward the northwest during the early part of June 1947. For example, Flight 5 proceeded mainly east as it rose through the troposphere; when it entered the stratosphere, however, it was carried to the northwest. After some balloons burst and Flight 5 descended, it again headed in an easterly direction until it landed.

When Moore used the Weather Service wind data and NYU altitude information to simulate the probable paths of the flights with recorded ground tracks (Flights 5 and 6), his results agreed quite reasonably with the measured balloon paths—Flight 5 drifted mainly to the east, landing near Roswell, while Flight 6 took a more southwesterly route. Moore then extended his analysis to Flight 4, the Roswell candidate. He used the wind data for June 4, 1947, and assumed the flight reached altitudes comparable to those of the subsequent two flights (which were made with very similar balloon trains).

Moore's analysis indicates that after Flight 4 lifted off from Alamogordo, it probably ascended while traveling northeast (toward Arabela), then turned toward the northwest during its passage through the stratosphere, and then descended back to earth in a generally northeast direction. Moore's calculated balloon path is quite consistent with a landing at the Foster ranch, approximately 85 miles northeast of the Alamogordo launch site and 60 miles northwest of Roswell. Furthermore, the debris was strewn along the ground at a southwest-to-northeast angle (as reported by Major Jesse Marcel); this angle is entirely consistent with Moore's analysis.

Charles B. Moore has been repeatedly criticized in the UFO literature for changing some of his earlier statements. He was interviewed for William Moore's book on the Roswell Incident. After hearing Bill Moore's description of the wreckage (including details of supposed 10-inch furrows running some 500 feet), Charlie Moore responded by saying: "Based on the description you gave me, I think that could not have been our balloon." Balloon trains like Flight 4 were far too light to make large furrows in the ground. The issue is not that Charles Moore said the wreckage couldn't have been a balloon—it's that he said his flights couldn't have plowed the alleged "furrows." On another note, Moore and other Mogul participants originally thought the debris Brazel found must have been from one of NYU's polyethylene balloon flights from early July 1947. He held this opinion until just a couple of years ago. These large, transparent polyethylene balloons were used for the first time ever in the summer of 1947 and would have looked strange even to experienced balloon watchers. However, after seeing the reports and photographs from 1947 for the first time, Charles Moore realized that Flight 4 was a much better candidate for the Foster ranch debris than a polyethylene balloon. So he *has* changed his opinions on the incident, but only because better data became available.

"Moore makes a strong case for the hypothesis that NYU Flight #4 . . . was the source of the debris Brazel found on the Foster ranch, and therefore the source of the 'Roswell Incident' itself."

Photos: Dave Thomas

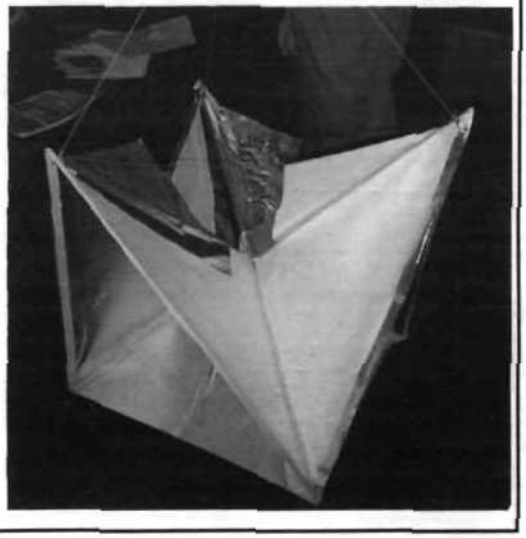

FIGURE 3. Atmospheric physicist Charles B. Moore displays a radar reflector similar to those carried aloft on trains of balloons in Project Mogul experiments he helped launch from Alamogordo Army Air Field in New Mexico in June and early July 1947. New York University Flight #4 carried three of these reflectors and before being lost was tracked to within 17 miles of the spot where rancher Mac Brazel later recovered debris that prompted the famous "Roswell Incident" case.

Moore's presentation included fascinating details on the background of Project Mogul. He noted that the discovery of the acoustic "duct" between the troposphere and the stratosphere came about as a result of a World War II era analysis of globally propagated sound waves produced by the volcanic explosion of Krakatoa in 1883. In one of their flights, he said the NYU crew attempted (without success) to detect explosions from the British destruction of German installations on the island of Helgoland (off the north German coast) in April 1948. While UFO proponents allege a lack of contemporary references to "Project Mogul Balloon Flights," Moore says the project was so compartmentalized that such references simply may not exist. Any mention of these flights will instead be labeled as NYU constant-level balloon research.

Several UFO authors claim that the wreckage, and possibly alien bodies as well, were secretly flown to Wright Field in Dayton, Ohio for analysis. By coincidence, Moore says he and the rest of the NYU balloon crew stayed over at Wright Field the evening of July 8, 1947, en route back to New Jersey, just as the Roswell story was breaking. Moore says they first learned of the incident while in Dayton, and figured that it was probably caused by one of their recent polyethylene balloon flights.

The September 1994 Air Force report indicates that the Brazel debris also made its way to Wright Field. During an Air Force interview of Mogul participant Colonel Albert C. Trakowski, he recalled a July 1947 telephone call from Colonel Marcellus Duffy, who was stationed at Wright Field and was intimately knowledgeable about both Project Mogul and military weather equipment. Duffy told Trakowski that a fellow from New Mexico came to Dayton, woke him up in the middle of the night, and showed him the debris. Colonel Duffy told the fellow, "It looks like some of the stuff you've been launching at Alamogordo."

What is the bottom line on the Roswell Incident, NYU, and Project Mogul? In Moore's words, "When the wind information is coupled with the similarities in the debris described by the eyewitnesses—the balsa sticks, the 'tinfoil,' the tape with pastel, pinkish-purple flowers, the smoky gray balloon rubber with a burnt odor, the eyelets, the tough paper, the four-inch-diameter aluminum pieces and the black box—to the materials used in our balloon flight trains, it appears to me that it would be difficult to exclude NYU Flight 4 as a likely source of the debris that W. W. Brazel found on the Foster ranch in 1947." □

How to Sell a Pseudoscience

ANTHONY R. PRATKANIS

Want your own pseudoscience? Here are nine effective persuasion tactics for selling all sorts of flimflam.

Every time I read the reports of new pseudosciences in the SKEPTICAL INQUIRER or watch the latest "In Search Of"-style television show I have one cognitive response, "Holy cow, how can anyone believe that?" Some recent examples include: "Holy cow, why do people spend $3.95 a minute to talk on the telephone with a 'psychic' who has never foretold the future?" "Holy cow, why do people believe that an all uncooked vegan diet is natural and therefore nutritious?" "Holy cow, why would two state troopers chase the planet Venus across state lines thinking it was an alien spacecraft?" "Holy cow, why do people spend millions of dollars each year on subliminal tapes that just don't work?"

There are, of course, many different answers to these "holy cow" questions. Conjurers can duplicate pseudoscientific feats and thus show us how sleights of hand

and misdirections can mislead (e.g., Randi 1982a, 1982b, 1989). Sociologists can point to social conditions that increase the prevalence of pseudoscientific beliefs (e.g., Lett 1992; Padgett and Jorgenson 1982; Victor 1993). Natural scientists can describe the physical properties of objects to show that what may appear to be supernatural is natural (e.g., Culver and Ianna 1988; Nickell 1983, 1993). Cognitive psychologists have identified common mental biases that often lead us to misinterpret social reality and to conclude in favor of supernatural phenomena (e.g., Blackmore 1992; Gilovich 1991; Hines 1988). These perspectives are useful in addressing the "holy cow" question; all give us a piece of the puzzle in unraveling this mystery.

I will describe how a social psychologist answers the holy cow question. Social psychology is the study of social influence—how human beings and their institutions influence and affect each other (see Aronson 1992; Aronson and Pratkanis 1993). For the past seven decades, social psychologists have been developing theories of social influence and have been testing the effectiveness of various persuasion tactics in their labs (see Cialdini 1984; Pratkanis and Aronson, 1992). It is my thesis that many persuasion tactics discovered by social psychologists are used every day, perhaps not totally consciously, by the promoters of pseudoscience (see Feynman 1985 or Hines 1988 for a definition of pseudoscience).

To see how these tactics can be used to sell flimflam, let's pretend for a moment that we wish to have our very own pseudoscience. Here are nine common propaganda tactics that should result in success.

Anthony R. Pratkanis is associate professor of psychology, University of California, Santa, Cruz, CA 95064. *This article is based on a paper presented at the conference of the Committee for the Scientific Investigation of Claims of the Paranormal, June 23-26, 1994, in Seattle, Washington.*

Gerald Fried

1. Create a Phantom

The first thing we need to do is to create a phantom—an unavailable goal that looks real and possible; it looks as if it might be obtained with just the right effort, just the right belief, or just the right amount of money, but in reality it can't be obtained. Most pseudosciences are based on belief in a distant or phantom goal. Some examples of pseudoscience phantoms: meeting a space alien, contacting a dead relative at a séance, receiving the wisdom of the

universe from a channeled dolphin, and improving one's bowling game or overcoming the trauma of rape with a subliminal tape.

Phantoms can serve as effective propaganda devices (Pratkanis and Farquhar 1992). If I don't have a desired phantom, I feel deprived and somehow less of a person. A pseudoscientist can take advantage of these feelings of inferiority by appearing to offer a means to obtain that goal. In a rush to enhance self-esteem, we suspend better judgment and readily accept the offering of the pseudoscience.

The trick, of course, is to get the new seeker to believe that the phantom is possible. Often the mere mention of the delights of a phantom will be enough to dazzle the new pseudoscience recruit (see Lund's 1925 discussion of wishful thinking). After all, who wouldn't want a better sex life, better health, and peace of mind, all from a $14.95 subliminal tape? The fear of loss of a phantom also can motivate us to accept it as real. The thought that I will never speak again to a cherished but dead loved one or that next month I may die of cancer can be so painful as to cause me to suspend my better judgment and hold out hope against hope that the medium can contact the dead or that Laetrile works. But at times the sell is harder, and that calls for our next set of persuasion tactics.

2. Set a Rationalization Trap

The rationalization trap is based on the premise: Get the person committed to the cause as soon as possible. Once a commitment is made, the nature of thought changes. The committed heart is not so much interested in a careful evaluation of the merits of a course of action but in proving that he or she is right.

To see how commitment to a pseudoscience can be established, let's look at a bizarre case—mass suicides at the direction of cult leader Jim Jones. This is the ultimate "holy cow" question: "Why kill yourself and your children on another's command?" From outside the cult, it appears strange, but from the inside it seems natural. Jones began by having his followers make easy commitments (a gift to the church, attending Wednesday night service) and then increased the level of commitment—more tithes, more time in service, loyalty oaths, public admission of sins and punishment, selling of homes, forced sex, moving to Guyana, and then the suicide. Each step was really a small one. Outsiders saw the strange end-product; insiders experienced an ever increasing spiral of escalating commitment. (See Pratkanis and Aronson 1992 for other tactics used by Jones.)

This is a dramatic example, but not all belief in pseudoscience is so extreme. For example, there are those who occasionally consult a psychic or listen to a subliminal tape. In such cases, commitment can be secured by what social psychologists call the foot-in-the-door technique (Freedman and Fraser 1966). It works this way: You start with a small request, such as accepting a free chiropractic spine exam (Barrett 1993a), taking a sample of vitamins, or completing a free personality inventory. Then a larger request follows—a $1,000 chiropractic realignment, a vitamin regime, or an expensive seminar series. The first small request sets the commitment: Why did you get that bone exam, take those vitamins, or complete that test if you weren't interested and didn't think there might be something to it? An all too common response, "Well gosh, I guess I am interested." The rationalization trap is sprung.

Now that we have secured the target's commitment to a phantom goal, we need some social support for the newfound pseudoscientific beliefs. The next tactics are designed to bolster those beliefs.

3. Manufacture Source Credibility and Sincerity

Our third tactic is to manufacture source credibility and sincerity. In other words, create a guru, leader, mystic, lord, or other generally likable and powerful authority, one who people would be just plain nuts if they didn't believe. For example, practitioners of alternative medicine often have "degrees" as chiropractors or in homeopathy. Subliminal tape sellers claim specialized knowledge and training in such arts as hypnosis. Advocates of UFO sightings often become directors of "research centers." "Psychic detectives" come with long résumés of police service. Prophets claim past successes. For example, most of us "know" that Jeane Dixon predicted the assassination of President Kennedy but probably don't know that she also predicted a Nixon win in 1960. As modern public relations has shown us, credibility is easier to manufacture than we might normally think (see Ailes 1988; Dilenschneider 1990).

Source credibility is an effective propaganda device for at least two reasons. First, we often process persuasive messages in a half-mindless state—either because we are not motivated to think, don't have the time to consider, or lack the abilities to understand the issues (Petty and Cacioppo 1986). In such cases, the presence of a credible source can lead one to quickly infer that the message has merit and should be accepted.

Second, source credibility can stop questioning (Kramer and Alstad 1993). After all, what gives you the right to question a guru, a prophet, the image of the Mother Mary, or a sincere seeker of life's hidden potentials? I'll clarify this point with an example. Suppose I told you that the following statement is a prediction of the development of the atomic bomb and the fighter aircraft (see Hines 1988):

> They will think they have seen the Sun at night
> When they will see the pig half-man:
> Noise, song, battle fighting in the sky perceived,
> And one will hear brute beasts talking.

You probably would respond: "Huh? I don't see how you get the atomic bomb from that. This could just as well be a prediction of an in-flight showing of the Dr. Doolittle movie or

the advent of night baseball at Wrigley field." However, attribute the statement to Nostradamus and the dynamics change. Nostradamus was a man who supposedly cured plague victims, predicted who would be pope, foretold the future of kings and queens, and even found a poor dog lost by the king's page (Randi 1993). Such a great seer and prophet can't be wrong. The implied message: The problem is with you; instead of questioning, why don't you suspend your faulty, linear mind until you gain the needed insight?

4. Establish a Granfalloon

Where would a leader be without something to lead? Our next tactic supplies the answer: Establish what Kurt Vonnegut (1976) terms a "granfalloon," a proud and meaningless association of human beings. One of social psychology's most remarkable findings is the ease with which granfalloons can be created. For example, the social psychologist Henri Tajfel merely brought subjects into his lab, flipped a coin, and randomly assigned them to be labeled either Xs or Ws (Tajfel 1981; Turner 1987). At the end of the study, total strangers were acting as if those in their granfalloon were their close kin and those in the other group were their worst enemies.

Granfalloons are powerful propaganda devices because they are easy to create and, once established, the granfalloon defines social reality and maintains social identities. Information is dependent on the granfalloon. Since most granfalloons quickly develop outgroups, criticisms can be attributed to those "evil ones" outside the group, who are thus stifled. To maintain a desired social identity, such as that of a seeker or a New Age rebel, one must obey the dictates of the granfalloon and its leaders.

The classic séance can be viewed as an ad-hoc granfalloon. Note what happens as you sit in the dark and hear a thud. You are dependent on the group led by a medium for the interpretation of this sound. "What is it? A knee against the table or my long lost Uncle Ned? The group believes it is Uncle Ned. Rocking the boat would be impolite. *Besides, I came here to be a seeker.*"

Essential to the success of the granfalloon tactic is the creation of a shared social identity. In creating this identity, here are some things you might want to include:

(a) rituals and symbols (e.g., a dowser's rod, secret symbols, and special ways of preparing food): these not only create an identity, but provide items for sale at a profit.

(b) jargon and beliefs that only the in-group understands and accepts (e.g., thetans are impeded by engrams, you are on a cusp with Jupiter rising): jargon is an effective means of social control since it can be used to frame the interpretation of events.

(c) shared goals (e.g., to end all war, to sell the faith and related products, or to realize one's human potential): such goals not only define the group, but motivate action as believers attempt to reach them.

(d) shared feelings (e.g., the excitement of a prophecy that might appear to be true or the collective rationalization of strange beliefs to others): shared feelings aid in the *we* feeling.

(e) specialized information (e.g., the U.S. government is in a conspiracy to cover up UFOs): this helps the target feel special because he or she is "in the know."

(f) enemies (e.g., alternative medicine opposing the AMA and the FDA, subliminal-tape companies spurning academic psychologists, and spiritualists condemning Randi and other investigators): enemies are very important because you as a pseudoscientist will need scapegoats to blame for your problems and failures.

5. Use Self-Generated Persuasion

Another tactic for promoting pseudoscience and one of the most powerful tactics identified by social psychologists is self-generated persuasion—the subtle design of the situation so that the targets persuade themselves. During World War II, Kurt Lewin (1947) was able to get Americans to eat more sweetbreads (veal and beef organ meats) by having them form groups to *discuss how they could persuade others* to eat sweetbreads.

Retailers selling so-called nutritional products have discovered this technique by turning customers into salespersons (Jarvis and Barrett 1993). To create a multilevel sales organization, the "nutrition" retailer recruits customers (who recruit still more customers) to serve as sales agents for the product. Customers are recruited as a test of their belief in the product or with the hope of making lots of money (often to buy more products). By trying to sell the product, the customer-turned-salesperson becomes more convinced of its worth. One multilevel leader tells his new sales agents to "answer all objections with testimonials. That's the secret to motivating people" (Jarvis and Barrett 1993), and it is also the secret to convincing yourself.

6. Construct Vivid Appeals

Joseph Stalin once remarked: "The death of a single Russian soldier is a tragedy. A million deaths is a statistic." (See Nisbett and Ross 1980.) In other words, a vividly presented case study or example can make a lasting impression. For example, the pseudosciences are replete with graphic stories of ships and planes caught in the Bermuda Triangle, space aliens examining the sexual parts of humans, weird goings-on in Borley Rectory or Amityville, New York, and psychic surgeons removing cancerous tumors.

A vivid presentation is likely to be very memorable and hard to refute. No matter how many logical arguments can be mustered to counter the pseudoscience claim, there remains that one graphic incident that comes quickly to mind to prompt the response: "Yeah, but what about that haunted house in New York? Hard to explain that." By the way, one of the best ways to counter a vivid appeal is with an equally vivid counter appeal. For example, to counter stories about psychic surgeons in the Philippines, Randi (1982a) tells an equally vivid

story of a psychic surgeon palming chicken guts and then pretending to remove them from a sick and now less wealthy patient.

7. Use Pre-persuasion

Pre-persuasion is defining the situation or setting the stage so you win, and sometimes without raising so much as a valid argument. How does one do this? At least three steps are important.

First, establish the nature of the issue. For example, to avoid the wrath of the FDA, advocates of alternative medicine define the issue as health freedom (you should have the right to the health alternative of your choice) as opposed to consumer protection or quality care. If the issue is defined as freedom, the alternative medicine advocate will win because "Who is opposed to freedom?" Another example of this technique is to create a problem or disease, such as reactive hypoglycemia or yeast allergy, that then just happens to be "curable" with whatever quackery you have to sell (Jarvis and Barrett 1993).

Another way to define an issue is through differentiation. Subliminal-tape companies use product differentiation to respond to negative subliminal-tape studies. The claim: "Our tapes have a special technique that makes them superior to other tapes that have been used in studies that failed to show the therapeutic value of subliminal tapes." Thus, null results are used to make a given subliminal tape look superior. The psychic network has taken a similar approach—"Tired of those phoney psychics? Ours are certified," says the advertisement.

Second, set expectations. Expectations can lead us to interpret ambiguous information in a way that supports an original hypothesis (Greenwald, Pratkanis, Leippe, and Baumgardner 1986). For example, a belief in the Bermuda Triangle may lead us to interpret a plane crash off the coast of New York City as evidence for the Triangle's sinister effects (Kusche 1986; Randi 1982a). We recently conducted a study that showed how an expectation can lead people to think that subliminal tapes work when in fact they do not (Greenwald, Spangenberg, Pratkanis, and Eskenazi 1991; Pratkanis, Eskenazi, and Greenwald 1994; for a summary see Pratkanis 1992). In our study, expectations were established by mislabeling half the tapes (e.g., some subjects thought they had a subliminal tape to improve memory but really had one designed to increase self-esteem). The results showed that about half the subjects thought they improved (though they did not) based on how the tape was labeled (and not the actual content). The label led them to interpret their behavior in support of expectations, or what we termed an "illusory placebo" effect.

A third way to pre-persuade is to specify the decision criteria. For example, psychic supporters have developed guidelines on what should be viewed as acceptable evidence for paranormal abilities—such as using personal experiences as data, placing the burden of proof on the critic and not the claimant (see Beloff 1985), and above all else keeping James Randi and other psi-inhibitors out of the testing room. Accept these criteria and one must conclude that psi is a reality. The collaboration of Hyman and Honorton is one positive attempt to establish a fair playing field (Hyman and Honorton 1986).

"Source credibility can stop questioning. After all, what gives you the right to question a guru, a prophet, the image of the Mother Mary, or a sincere seeker of life's hidden potentials?"

8. Frequently Use Heuristics and Commonplaces

My next recommendation to the would-be pseudoscientist is to use heuristics and commonplaces. Heuristics are simple if-then rules or norms that are widely accepted; for example, if it costs more it must be more valuable. Commonplaces are widely accepted beliefs that can serve as the basis of an appeal; for example, government health-reform should be rejected because politicians are corrupt (assuming political corruption is a widely accepted belief). Heuristics and commonplaces gain their power because they are widely accepted and thus induce little thought about whether the rule or argument is appropriate.

To sell a pseudoscience, liberally sprinkle your appeal with heuristics and commonplaces. Here are some common examples.

(a) The *scarcity heuristic,* or if it is rare it is valuable. The Psychic Friends Network costs a pricey $3.95 a minute and therefore must be valuable. On the other hand, an average University of California professor goes for about 27 cents per minute and is thus of little value.[1]

(b) The *consensus or bandwagon* heuristic, or if everyone agrees it must be true. Subliminal tapes, psychic phone ads, and quack medicine (Jarvis and Barrett 1993) feature testimonials of people who have found what they are looking for (see Hyman 1993 for a critique of this practice).

(c) The *message length* heuristic, or if the message is long it is strong. Subliminal-tape brochures often list hundreds of subliminal studies in support of their claims. Yet most of these studies do not deal with subliminal influence and thus are irrelevant. An uninformed observer would be impressed by the weight of the evidence.

(d) The *representative* heuristic or if an object resembles another (on some salient dimension) then they act similarly. For example, in folk medicines the cure often resembles the apparent cause of the disease. Homeopathy is based on the notion that small amounts of substances that can cause a disease's symptoms will cure the disease (Barrett 1993b). The Chinese Doctrine of Signatures claims that similarity of shape and form determine therapeutic value; thus rhinoceros horns, deer antlers, and ginseng root

look phallic and supposedly improve vitality (Tyler 1993).

(e) The *natural* commonplace, or what is natural is good and what is made by humans is bad. Alternative medicines are promoted with the word "natural." Psychic abilities are portrayed as natural, but lost, abilities. Organic food is natural. Of course mistletoe berries are natural too, and I don't recommend a steady diet of these morsels.

(f) The *goddess-within* commonplace, or humans have a spiritual side that is neglected by modern materialistic science. This commonplace stems from the medieval notion of the soul, which was modernized by Mesmer as animal magnetism and then converted by psychoanalysis into the powerful, hidden unconscious (see Fuller 1982, 1986). Pseudoscience plays to this commonplace by offering ways to tap the unconscious, such as subliminal tapes, to prove this hidden power exists through extrasensory perception (ESP) and psi, or to talk with the remnants of this hidden spirituality through channeling and the séance.

(g) The *science* commonplaces. Pseudosciences use the word "science" in a contradictory manner. On the one hand, the word "science" is sprinkled liberally throughout most pseudosciences: subliminal tapes make use of the "latest scientific technology"; psychics are "scientifically tested"; health fads are "on the cutting edge of science." On the other hand, science is often portrayed as limited. For example, one article in *Self* magazine (Sharp 1993) reported our subliminal-tapes studies (Greenwald et al. 1992; Pratkanis et al. 1994) showing no evidence that the tapes worked and then stated: "Tape makers dispute the objectivity of the studies. They also point out that science can't always explain the results of mainstream medicine either" (p. 194). In each case a commonplace about science is used: (1) "Science is powerful" and (2) "Science is limited and can't replace the personal." The selective use of these commonplaces allows a pseudoscience to claim the power of science but have a convenient out should science fail to promote the pseudoscience.

9. Attack Opponents Through Innuendo and Character Assassination

Finally, you would like your pseudoscience to be safe from harm and external attack. Given that the best defense is a good offense, I offer the advice of Cicero: "If you don't have a good argument, attack the plaintiff."

Let me give a personal example of this tactic in action. After our research showing that subliminal tapes have no therapeutic value was reported, my coauthors, Tony Greenwald, Eric Spangenberg, and Jay Eskenazi, and I were the target of many innuendoes. One subliminal newsletter edited by Eldon Taylor, Michael Urban, and others (see the *International Society of Peripheral Learning Specialists Newsletter,* August 1991) claimed that our research was a marketing study designed not to test the tapes but to "demonstrate the influence of marketing practices on consumer perceptions." The article points out that the entire body of data presented by Greenwald represents a marketing dissertation by Spangenberg and questions why Greenwald is even an author. The newsletter makes other attacks as well, claiming that our research design lacked a control group, that we really found significant effects of the tapes, that we violated American Psychological Association ethics with a hint that an investigation would follow, that we prematurely reported our findings in a manner similar to those who prematurely announced cold fusion, and that we were conducting a "Willie Horton"-style smear campaign against those who seek to help Americans achieve their personal goals.

Many skeptics can point to similar types of attacks. In the fourteenth century, Bishop Pierre d'Arcis, one of the first to contest the authenticity of the Shroud of Turin, was accused by shroud promoters as being motivated by jealousy and a desire to possess the shroud (Nickell 1983: 15). Today, James Randi is described by supporters of Uri Geller as "a powerful psychic trying to convince the world that such powers don't exist so he can take the lead role in the psychic world" (Hines 1988: 91).

Why is innuendo such a powerful propaganda device? Social psychologists point to three classes of answers. First, innuendoes change the agenda of discussion. Note the "new" discussion on subliminal tapes isn't about whether these tapes are worth your money or not. Instead, we are discussing whether I am ethical or not, whether I am a competent researcher, and whether I even did the research.

Second, innuendoes raise a glimmer of doubt about the character of the person under attack. That doubt can be especially powerful when there is little other information on which to base a judgment. For example, the average reader of the subliminal newsletter I quoted probably knows little about me—knows little about the research and little about the peer review process that evaluated it, and doesn't know that I make my living from teaching college and not from the sale of subliminal tapes. This average reader is left with the impression of an unethical and incompetent scientist who is out of control. Who in their right mind would accept what that person has to say?

Finally, innuendoes can have a chilling effect (Kurtz 1992). The recipient begins to wonder about his or her reputation and whether the fight is worth it. The frivolous lawsuit is an effective way to magnify this chilling effect.

Can Science Be Sold with Propaganda?

I would be remiss if I didn't address one more issue: Can we sell science with the persuasion tactics of pseudoscience? Let's be honest; science sometimes uses these tactics. For example, I carry in my wallet a membership card to the Monterey Bay Aquarium with a picture of the cutest little otter you'll ever see. I am in the otter granfalloon. On some occasions skeptics have played a little loose with their arguments and their name-calling. As just

one example, see George Price's (1955) *Science* article attacking Rhine's and Soal's work on ESP—an attack that went well beyond the then available data. (See Hyman's [1985] discussion.)

I can somewhat understand the use of such tactics. If a cute otter can inspire a young child to seek to understand nature, then so be it. But we should remember that such tactics can be ineffective in promoting science if they are not followed up by involvement in the process of science—the process of questioning and discovering. And we should be mindful that the use of propaganda techniques has its costs. If we base our claims on cheap propaganda tactics, then it is an easy task for the pseudoscientist to develop even more effective propaganda tactics and carry the day.

More fundamentally, propaganda works best when we are half mindless, simplistic thinkers trying to rationalize our behavior and beliefs to ourselves and others. Science works best when we are thoughtful and critical and scrutinize claims carefully. Our job should be to promote such thought and scrutiny. We should be careful to select our persuasion strategies to be consistent with that goal.

Notes

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1. Based on 50 weeks a year at an average salary of $49,000 and a work week of 61 hours (as reported in recent surveys of the average UC faculty work load). Assuming a work week of 40 hours, the average faculty makes 41 cents a minute.

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Rumors, Self-Fulfilling Prophecies and National Obsessions

JOHN ALLEN PAULOS

When facts are missing from news reports, individuals and societies fill in the gaps with their own fantasies.

Mathematical naiveté can put readers at a disadvantage in thinking about many issues in the news that may seem on the surface not to involve mathematics at all. I investigate the mathematical angles of some of these in my new book, *A Mathematician Reads the Newspaper* (Basic Books, New York, 1995).

The book demonstrates how the notions of probability and randomness can enhance articles on crime, health risks, and racial or ethnic bias; how logic and self-reference may help to clarify the hazards of celebrity and spin-doctoring; how simple arithmetic is sufficient to point up consumer fallacies and sports myths; how chaos and nonlinear dynamics underline how difficult and frequently worthless economic and environmental prediction is; and how mathematically pertinent notions from philosophy and psychology provide perspective on a

variety of public issues from abortion to gun control.

But what about the specific concerns of the Committee for the Scientific Investigation of Claims of the Paranormal? One of these is certainly an uncritical receptivity to the meaningless coincidences and incongruities that permeate any newspaper. Related is a tendency to impose order and meaning where there is none, to see evidence for preconceived biases where there is none. The O.J. saga is an obvious example. So is the case of the "toxic lady." Another possible instance is the Florida dentist who allegedly infected six of his patients with HIV. An investigation of the story by Stephen Barr in *Lear's* magazine and an excerpt in a *New York Times* Op-Ed in March 1994 revealed a number of lacunae in the case against the dentist. It appears that some, if not all, of the victims had other risk factors that might have exposed them to the virus. And the test used to determine if two strains of the virus are the same is still controversial and not widely accepted. Furthermore, the rate of HIV infection among the dentist's thousands of patients was only slightly higher than the rate in the two counties from which the patients came. The dentist, in fact, may have been a victim of the unreasoning fear induced by the AIDS epidemic.

Whether so or not, philosopher Daniel C. Dennett, in his book *Consciousness Explained,* describes a party game that I believe provides a somewhat unusual slant on this and other cases in which there is an element of self-fulfilling prophecy. (Dennett uses it to bolster his theory of mind.) A familiar variant of the game requires that one try to determine by means of yes-or-no questions an arbitrary number between one and one million. In this more interesting version, which you might want to play if you have a friend you'd like to shed, one person is selected from the group and asked to leave the room. He (or she) is told that in his absence one of the other partygoers will relate a recent dream to the party. The person selected then returns to the party and, through a sequence of yes-or-no questions directed to the group, attempts to accomplish two things: reconstruct the dream and identify whose dream it was.

The punch line is that no one has related any dream. The partygoers agree to respond either yes or no to the victim's questions according to some arbitrary rule. Dennett suggests having their answers be determined by whether the last letter in the last word of the question is from the beginning or the end of the alphabet. Any rule will do, however, and may be supplemented by a noncontradiction clause stipulating that no answer directly contradict an earlier one.

The surprising result is that the victim, impelled by his own obsessions, often constructs an outlandish and obscene dream in response to the random answers he elicits. He may also think he knows whose dream it was, but then the ruse is revealed to him. Technically the dream has no author, but in a sense it is the victim himself. His preoccupations dictate his questions, which, even if answered negatively at first, will frequently receive a positive response in later reformulations. These positive responses are then pursued.

There is a body of experiment that seems to support the thesis that dreams and hallucinations can be explained in part by a variant of this party game. In both phenomena, a person's hypothesis-generating ability is intact, but the ability to test or falsify these hypotheses is impaired by drugs, sensory deprivation, or unconsciousness. The result is a more or less random sequence of "answers" to the questions posed implicitly during the dream or hallucination. Unencumbered by any critical reality checks, this random set of answers allows the dreamer or hallucinator to fashion his own construction.

A similar argument helps clarify why inane I Ching sayings and ambiguous horoscopes seem to many to be so apt. Their aptness is self-provided. In effect, their cryptic obscurity provides a random set of "answers" that the devotee fabricates into something seemingly appropriate and useful. With perhaps a bit more justification, psychologists count on the amorphousness of Rorschach inkblots to elicit evidence of a person's core concerns.

At the risk of stretching the point, I suppose that a phenomenon something like the one above takes place for larger groups of people as well. Societies do not possess minds, of course, but in times of crisis—war, stock frenzy, pestilence, riot—they do develop a primitive sort of cohesiveness, a quasi-consciousness approaching, perhaps, that of a mentally handicapped person in a deep drug-induced stupor. Because of the stress on it, such a society will have indefinite fears, hopes, and anxieties, but its contact with reality will be quite tenuous.

Reporting during a war or other crisis is, for a variety of reasons, deplorably shoddy. For this reason, the news the society does get is vague and generic and allows ample room for the societal analogue of dreams and hallucinations to develop. Societies without a free press and a literate population are especially vulnerable. A recent example is Guatemala, where peasants have seriously injured Western women thought to be kidnapping their babies. Another is Rwanda, where terrifying rumors and radio broadcasts inflamed and exacerbated an already terrifying situation. And the O.J. spectacle must be mentioned again; even in this country and in the glare of almost unprecedented public scrutiny, it has inspired countless unfounded rumors.

Ambiguity, randomness, and lack of information in response to obsessive questions and concerns can, on a group level, breed delusions and mirages in the same way that the party game induces the victim to concoct his own chimerical fantasy. Unfortunately, informative, skeptical, fastidious reporting is most needed when it's least likely to be forthcoming. □

John Allen Paulos, professor of mathematics at Temple University and a Fellow of CSICOP, is the author of the best-seller Innumeracy *and of the newly published* A Mathematician Reads the Newspaper *(Basic Books, New York), from which this article was adapted.*

Rose Mackenberg: Crusader Against Spiritualist Fraud

LOREN PANKRATZ

A remarkable woman joined forces with Houdini in exposing psychic frauds. After his death she carried on the campaign for another 20 years.

Inadvertently I discovered an article clipped from an Australian magazine about Rose Mackenberg. The article stated that Mackenberg once worked for Houdini. Following his death she pursued fraudulent mediums for more than 20 years. It occurred to me that I had never seen an exposé of psychic fraud by a woman. I searched my library on spiritualism and found only the writings of Amy Tanner, who had worked as an assistant to psychologist G. Stanley Hall. Her *Studies in Spiritism* (recently reprinted by Prometheus) exposed spirit medium Leonora Piper.

To find more on Rose Mackenberg, I consulted my favorite guide to the psychic underworld, Joseph Rinn's *Sixty Years of Psychical Research* (1950). Sure enough, there she was. However, I was surprised to discover how little attention he gave her, considering they were both involved in the same campaign. Her work is also men-

The levitation of a table is one of the oldest, yet one of the most effective, devices of the fraudulent spiritualist's spooky routine. Note the stick in Rose Mackenberg's glove, which is the gimmick of the trick.

The trumpet hangs miraculously in space—with an assist from the medium's accomplice—and spirit voices fill the air. Mackenberg's altered voice through her cupped hand completes this illusion.

tioned in other books on Houdini—S. Frikell's *Spirit Mediums Exposed* (1930) and Milbourne Christopher's *Houdini: The Untold Story* (1969)—and she received considerable newspaper coverage during her travels.

In 1925 Rose Mackenberg was a young private detective in New York. A banker sought her services after he invested institutional money in worthless stocks on the advice of a medium. Mackenberg boldly consulted Harry Houdini, who at the time was conducting crusades against false mediums. He gave her the advice she needed to trap and convict the woman.

Houdini was impressed with Mackenberg, and he persuaded her to join forces with him. Mackenberg traveled with his troupe, visiting psychics in the cities where he performed. Sometimes she had help from Houdini's young niece and secretary, Julia Sawyer. The two of them were a convincing pair.

Houdini's stage performances were usually concluded with exposures of fraudulent spiritualists. As a typical example, in Worcester, Massachusetts, he had given $10,000 in bonds to the mayor as a prize for any medium who could produce a single genuine manifestation. One night he was verbally challenged by spiritualist Letty Leveyne and her son, but they refused to come on stage. After some vigorous banter, Houdini called Rose to the stage. She revealed that Leveyne had produced a message for her from her departed husband and son. Unfortunately, Rose had never married. Then she showed her own charter for a Spiritualist Church, which she had purchased from the Massachusetts State Association for $13. Members of Houdini's staff nicknamed Rose "The Rev," because she had so many ministerial credentials from spiritualist churches ("Some Recollections of Houdini," *Mystifier,* 3[3]:2-4, 1993).

In 1926 Mackenberg testified with Houdini before a Congressional committee that was considering a bill to prohibit fortune-telling for fees in the District of Columbia. Mackenberg described many sordid experiences with mediums, including a diagnosis of cancer, sexual improprieties, and encouragement to invest in worthless stocks. She said that Jane Coates, a medium, had declared that table-tipping séances were held in the Coolidge White House and that she (Coates) was consulted by senators for readings. Coates interrupted the proceedings with shrill denials. A shouting match broke out, with Houdini in the middle of the hordes of mediums and clairvoyants. Finally, when fist fights erupted the police were called ("Under the Shadow of the White House," *New York Times,* May 19, 1926, p. 26).

After Houdini's death, Mackenberg decided to carry on the campaign alone. She began a lecture tour, demonstrating the tricks of mediums to service clubs and organizations. She floated trumpets, produced ectoplasm, and read sealed messages. She showed the advertisements for luminous paint in the trade magazines of spiritualists.

As Mackenberg became well known among spiritualists, she resorted to an impressive array of disguises: sorrowing widow, farmer's wife, domestic servant, and wealthy eccentric. She once declared that marriages must be made in heaven because she had received messages from 1,500 departed "husbands." She mused ironically that not one spirit ever whispered to a medium: "Psst! That woman is Rose Mackenberg, the debunker of our business!"

In the course of her career Mackenberg investigated psychics for police, private agencies, and insurance companies. She appeared in court on scores of occasions as an expert witness in criminal and civil lawsuits. Her credentials were impressive. She had graduated from schools for mediums and was ordained in spiritualist churches. "They asked me no questions as to whether I was sincere or not. All they were interested in was the amount of money I could pay them," she said.

The findings of Rose Mackenberg have strengthened my opinion that spiritualism was not merely a silly fad. Most spiritualist practitioners were morally corrupt and based their presentations on fraud. □

Loren Pankratz is a consultation psychologist at the Veterans Administration Medical Center, Portland, OR 97207, and a professor, Departments of Psychiatry and Medical Psychology, Oregon Health Sciences University.

Did the Moon Sink the Titanic?

Astrology, Lunar Phases, and Maritime Disasters

RICHARD L. BRANHAM, JR.

Do certain planetary alignments induce maritime disasters? Does the moon play a nefarious role? These assumptions are tested against dates of 1,457 marine disasters from 1523 to 1976

That celestial bodies are related to earthly affairs constitutes the central thesis of astrology. That celestial influences exist cannot be doubted; one only need consider the tides. But that these influences include determining a person's character and fate and extend to such matters as disasters is highly doubtful. The moon in particular has often been associated with abnormal behavior, of which werewolves represent an extreme, and various sorts of mayhem; the very word *lunatic* derives from the supposed baleful effects of the moon.

Statistical tests have been applied to verify these assertions, with predominantly negative results. The pages of the SKEPTICAL INQUIRER and other journals contain numerous articles demonstrating the falsity of astrology and abnormal lunar influences. Kelly, Laverty, and Saklofske (1990) found no evidence for a relationship

between 364 automobile disasters worldwide over a 22-year period and the synodic lunar cycle, the distance of the moon from the earth, or the lunar-solar tidal pull. Similarly, Kelly, Saklofske, and Culver (1990) found no correlation between lunar phase and various types of disasters worldwide. Their study, however, is somewhat limited, as they admit, because of the relatively small number of each type of disaster, such as 89 maritime disasters between 1854 and 1987.

In this study, I investigated only maritime disasters, but included a large number. Nash (1976) has catalogued disasters worldwide, where "disaster" is defined as an accident with 20 or more fatalities. From his compendium, I selected 1,457 maritime disasters occurring between 1523 and 1976. Wartime sinkings caused by enemy action were excluded because military operations are often planned with the effect of moonlight or tides in mind. The attack on Pearl Harbor took place when the moon was bright enough to allow nocturnal operations of the task force (Prange 1981). To include wartime sinkings would introduce an obvious bias into the results.

The dates of 26 of the disasters had to be adjusted to allow for the difference between the Julian and the Gregorian calendars. All but one of the sinkings involved English or Spanish vessels. Spain adopted the Gregorian calendar in 1582, England in 1752. All dates prior to these were corrected. The lone exception was a Dutch ship sunk August 15, 1654. The Catholic states of Holland adopted the Gregorian calendar during 1582 and 1583; the Protestant states, during 1700 and 1701. I assumed that the date was Julian and corrected it, although the conclusions of the study are unaffected by correcting or not correcting any of these dates. Figure 1 shows the distribution of the disasters with time.

A total of 1,457 disasters in 454 years represents one disaster every four months, but the distribution of dates is far from uniform. Only 78 occurred before 1800, and the rest afterwards. Taking this into account, the real distribution is closer to one disaster every month and a half. A selection effect—better reporting of disasters in the modern era—rather than a genuine difference in the distribution most likely explains the pre- and post-1800 variation. Spectral analysis is a powerful statistical technique for detecting periodicities in data with errors. The density of disasters is too low to apply spectral analysis to find correlations with lunar phase, but more than sufficient to look for possible planetary correlations.

Patrick Hubenthal

According to astrology, certain planets induce malevolent effects and others induce beneficent ones. Uranus, for example, is considered to be a malefic planet associated particularly with disasters (Heindel 1928). A correlation with Uranus's orbital period of 84 years or synodic period of 367 days (the planet as viewed from Earth returns to the same position with respect to the sun) should manifest itself. Certain configurations of the planets, called aspects, are also said to be malefic or benefic. A conjunction, a malefic aspect, of Saturn (another malefic planet) with Uranus, a configuration that occurs roughly every 45 years, should be especially evident.

Unfortunately for astrology, the spectrum of the dates of maritime disasters shows no evidence of *any* periodicity. The principal component of the spectrum, more than four times stronger than the strongest of the secondary compo-

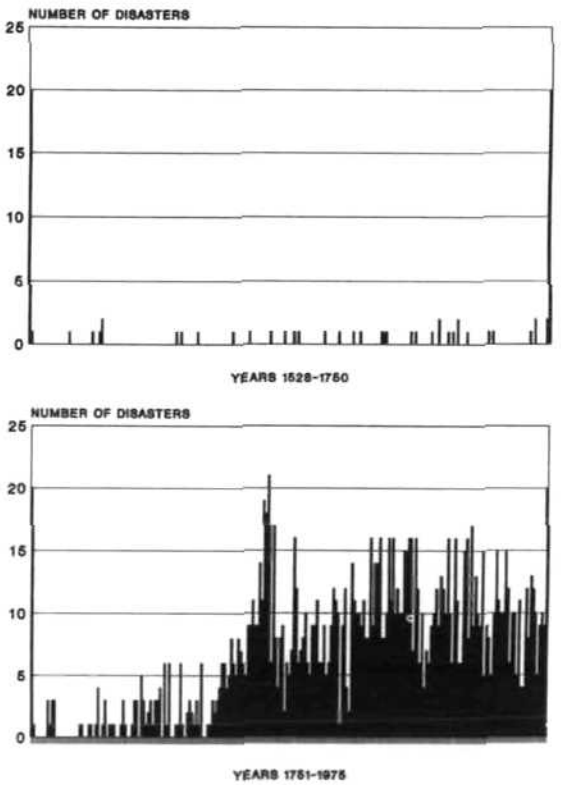


FIGURE 1. Distribution of maritime disasters with time.

Richard L. Branham, Jr., is Head, Mathematics Area, Regional Center for Scientific and Technological Research (CRICYT), 5500 Mendoza, Argentina.

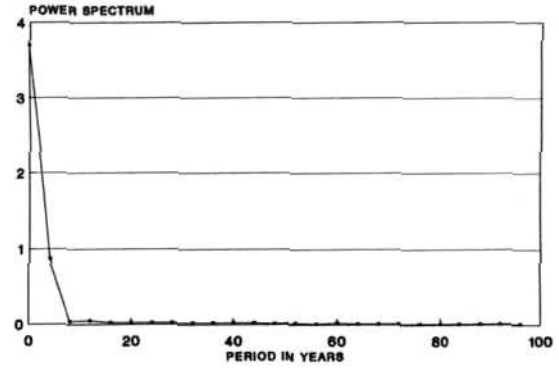


Figure 2. Power spectrum of maritime disasters, showing lack of periodicity in the data.

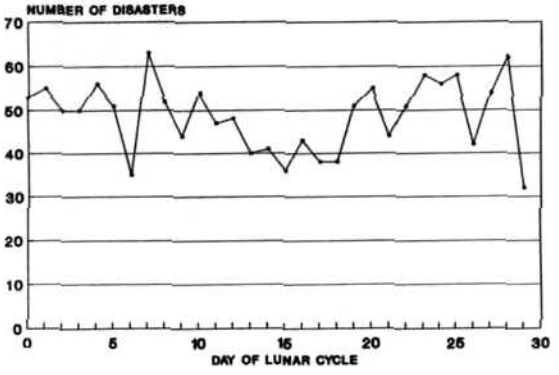


Figure 3. Distribution of maritime disasters versus lunar phase. Day 0 corresponds to new moon and day 14 to full moon. What appears to be a dip near full moon is only of marginal statistical significance.

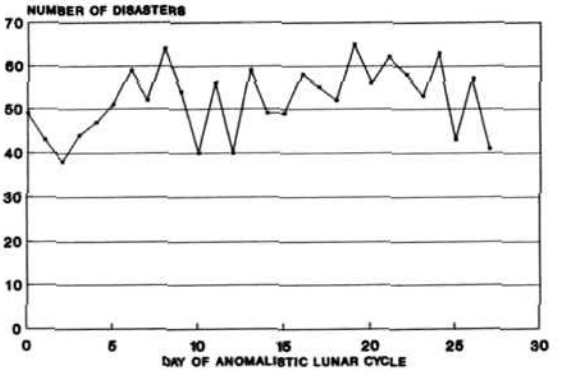


Figure 4. Distribution of maritime disasters versus the lunar anomalistic cycle. Day 0 corresponds to perigee. What appears to be a dip near day 2 is statistically insignificant.

nents, represents a constant ("white noise" in the terminology of spectral analysis). None of the secondary components exhibits even weak periodicity, as one can appreciate by looking at Figure 2. (Without going into technical details, often confusing and perhaps even boring to the uninitiated, algorithms for spectral analysis fall into various categories. The one I used is called the periodogram, or direct, method. Other methods are available: correlation transform, fast Fourier transform [FFT], maximum entropy. I also tried the correlation transform and FFT methods. Regardless of the actual method used, the conclusion remains that the principal component represents white noise. Depending on the details of how the analysis is done, anywhere from 55 percent to 70 percent of the spectrum—"power," in the terminology of spectral analysis—falls into the white noise component. Aside from the component adjacent to the white noise component, which receives significant leakage from the white noise—see Figure 2—none of the secondary components, and none associated with Saturn's period, Uranus's period, or the period of the Saturn-Uranus conjunction, contains significant power. Because the resolution of the analysis is two years, it cannot detect a possible correlation with Uranus's synodic period. This possible correlation was checked with a different test, mentioned below.)

Unless we assume that the malevolent influences of planets exclude maritime disasters, an assumption difficult to defend, we conclude that no evidence to support astrology can be found in maritime disasters. Bad cosmic configurations were not associated with the sinking of the *Titanic*.

To check for a possible correlation between lunar phase and maritime disasters I associated the date of each disaster with the corresponding day of the synodic lunar cycle (the cycle of lunar phases) and performed a standard chi-square test. The mean synodic lunar cycle is 29.53 days, with a variation from 29.27 days to 29.83 days. For this study I discretized the cycle as either exactly 29 days or 30 days, with day 0 corresponding with the new moon. Figure 3 shows the frequency of disasters with lunar phase. Of the 5,642 lunar cycles in the interval under study, 2,650 are of 29 days and 2,992 are of 30 days. This must be taken into account when calculating the χ^2 statistic over all lunar phases, otherwise day 29 of the lunar cycle contains too many disasters and day 30 too few.

Because for many the supposed deleterious effects of the moon occur only near the full moon—werewolfism, for example—the first χ^2 only considered the 11 days centered on full moon; the 5 days before the lunar phase day of full moon, the day of full moon, and the 5 days after the lunar phase day of full moon. With $n = 436$, the calculated statistic is $\chi^2 = 7.48$, $p = 0.587$, df (degrees of freedom) = 10. This affords no evidence that the full-moon day is associated with maritime disasters.

When all lunar phase days are taken into account, we find that with $n = 1{,}457$, $\chi^2 = 36.12$, $p = 0.170$, df = 28 or 29. Although this represents a lower probability for the distribution's being random, it nevertheless remains high enough to reject the hypothesis of an association of the moon with maritime disasters. (Deviations from randomness are in any event to be expected. The lunar cycle has been taken as either 29 or 30 days, ship sinkings do not take place at exactly noon or midnight, and moreover a selection effect exists. These, and possibly other effects, cause deviations from randomness.)

These remarks notwithstanding, a glance at Figure 3 indicates that fewer disasters seem to occur near full moon.

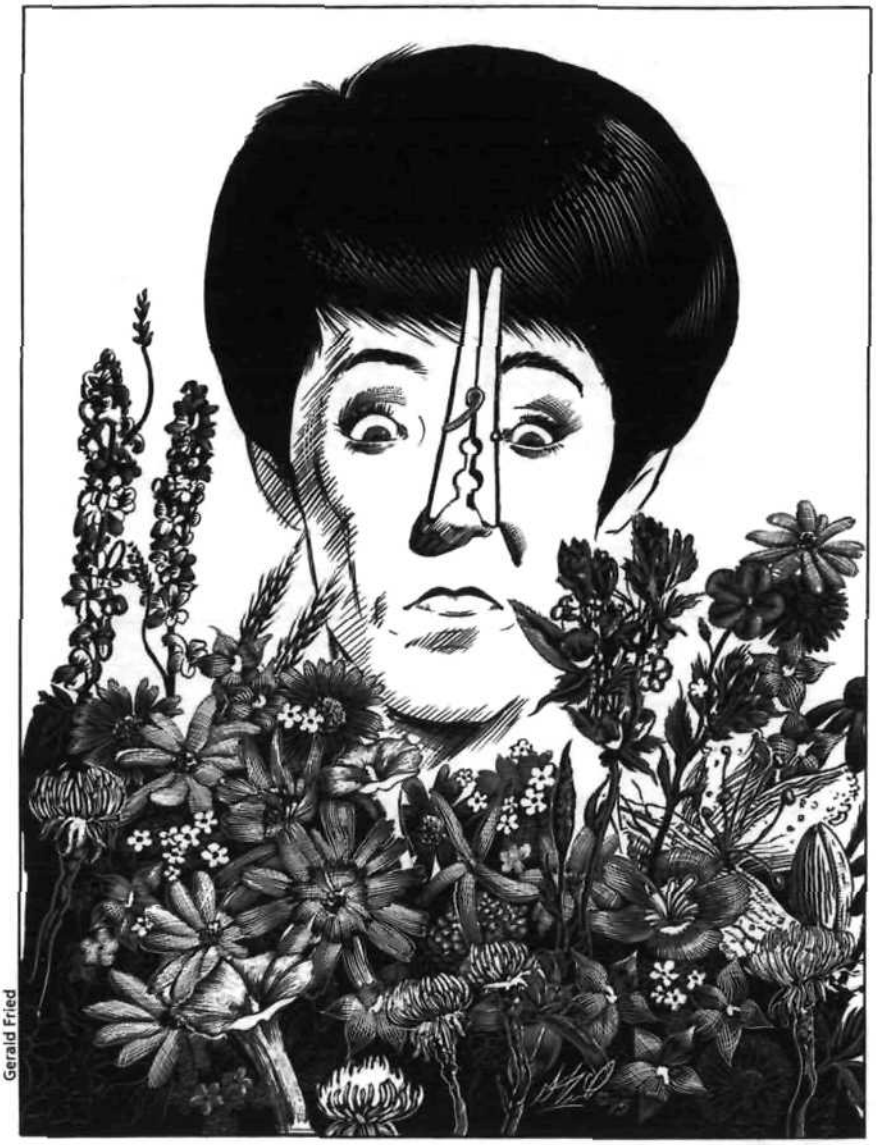
Moon continued on page 56

Bach Flower Remedies: Time to Stop Smelling the Flowers?

LYNN McCUTCHEON

Are the flower remedies for psychological ailments real, or are they nothing more than pretty placebos?

When I purchased a health-food store several years ago, I left behind a career as a psychology professor that spanned 23 years and more than 60 publications—or at least I thought I had. One of the things I "inherited" with the store was a small collection of Bach Flower Remedies. These tiny dark bottles carried familiar names, such as walnut, vine, beach, and pine, as well as the less familiar cerato, clematis, and mimulus. The bottles contained water supposedly collected from the dew on certain flowers diluted in pure water to the point that little or nothing of the flower remained. Each bottle also contained about one-fourth alcohol. I didn't know what these elixirs were supposed to do and I didn't think much about them until recently, when I stumbled across a paperback called *Bach Flower Essences for the Family* (Wigmore 1993).



Gerald Fried

I have become accustomed to seeing claims like "Vitamins A, C, and E will reduce your risk of heart problems" and "Garlic can lower your cholesterol." In a health-food store most of the claims are for physiological benefits. But the flower-remedies booklet made psychological claims, often bold and sweeping ones: "Mustard can make you more cheerful." "Olive will give you peace of mind." "Rock rose will reduce night terrors in children." "Insomnia sufferers need only take vervain." "Got an addiction? Walnut will take care of it." "Want a warmer relationship with others? No problem, just get out the water violet." I counted 238 psychological claims, an average of 6.26 for each of the 38 remedies. To become a marvelously well-adjusted person just add a few drops a day to a glass of water or juice.

To understand how this bizarre system "works" it is necessary to discuss the life of its founder, Edward Bach. Bach was a British physician who even as a medical student "spent little time with his books" (Weeks 1973:16) because he was convinced that his own intuition was superior to the knowledge found in print. After receiving his medical degree he practiced conventional medicine for a while, but his distaste for scientific methods coupled with his eccentric inclinations led him into conflict with the medical establishment. His eccentricities included the belief that heart disease is caused by the failure to develop love for humanity (Bach 1977a), the notion that bathing in hot water opens the skin and allows dirt in (Bach 1977a), and his warning that gland grafting is "ten thousand times worse than any plague" (Bach 1977a: 45). In the late 1920s he became convinced that "sun warmed dew absorbs vital healing powers from plants" (Tyler 1993: 214). He spent the remaining years of his life identifying plants that he felt were capable of changing human behavior for the better.

Conflicting information makes it difficult to identify the *real* Edward Bach. On the one hand we are told that he was always short of funds, but we are also told that he allowed the local football club to use *his* field next to *his* house and that he regularly bought drinks for everyone at the local pub (Weeks 1973). He was alleged to be a boxer as well as an oarsman, both of which demand excellent physical health, but was also described as being very sickly for long periods of time (Weeks 1973). His friends referred to him as a "leader of scientific research" (Weeks 1973: 42), yet he encouraged others to keep his work free from science (Wheeler 1977). Bach (1977b) tells us that his system was "divinely revealed" to him, but one of his leading disciples claims that there was careful testing and that "plants producing side effects were quickly discarded" (Kasloff 1988: 5). His intuition "always led him aright" (Weeks 1973: 39), but he "saw" the spirit of a drowned man hovering over the man's body and insisted that artificial respiration be continued for eight hours. The man died anyway (Weeks 1973).

One fact that no one disputes is that Bach died in 1936 at the age of 50, following a prolonged illness (Wigmore 1993). If he really did know the disease of the next patient, "hours before that patient reached his house" (Weeks 1973:116) and really did possess "miraculous" healing powers, as was alleged, why was he so frequently ill and why couldn't he heal himself?

There are other logical problems

Lynn McCutcheon taught psychology full-time for 23 years and currently teaches as an adjunct at Florida Southern College Address: 240 Harbor Drive, Winter Garden, FL 34787.

with his system. In spite of Bach's claim that he was divinely inspired, a close look shows that one of his sources of inspiration was an ancient false belief called the Doctrine of Signatures. According to this doctrine the form and shape of a drug source determine its therapeutic benefit (Tyler 1993). Thus, in Bach's system, essence of the flower impatiens is prescribed for impatience, oak and rock rose are given to those who wish to be strong, water violet is offered to the aloof (shrinking violet?), and wild oat is just the thing for the unconventional (sowing one's wild oats?). A few hundred years ago the Doctrine of Signatures might have been appealing, but with the many advances in the science of psychology it seems as outdated today as the practice of chaining mentally ill people to institutional walls.

Bach wrote (1976:109): "As all these remedies are pure and harmless, there is no fear of giving too much or too often. Nor can any remedy do harm should it prove not to be the one needed for the case." Were it not for the high alcohol content I would wholeheartedly agree with these statements—a placebo can't do any harm. But if we suspend good judgment for a moment and assume that his remedies actually work, then why wouldn't something that has the potential to heal also have the potential to harm. For example, what if a person who is nearly without fear ingests mimulus? Couldn't she become so fearless that she might attempt to stop an armed robbery? What about the person who already harbors few regrets? If he takes honeysuckle, which supposedly reduces regretful feelings, might he not increase the risk of developing into a full-fledged psychopath? That which has the power to help also has the power to harm. Why should the Bach Flower Essences be any different in that respect from automobiles or nuclear power?

We are told that after discovering the thirty-eighth remedy Bach *knew* there were no more discoveries to be made (Weeks 1973). Nearly all had been found within a few miles of Bach's living quarters. There are a huge number of flowering plants in the world, and since 1936 some of them have been determined to be useful. Yet, to the best of my knowledge Bach's followers have never attempted to explain why their system still has found only 38 essences that have psychological usefulness. Nor have they, as far as I know, attempted to explain the coincidence that placed nearly all of these within a few miles of Bach's house.

Logical inconsistencies are not the only problem inherited by Bach's disciples. Many of them took too seriously his advice to keep the remedies free from science. I called two leading manufacturers of homeopathic products and asked to speak with their research experts. One had "no idea if it worked or not," and he said that he was unaware of any relevant research. The other researcher didn't know of any studies either, but opined that it might "work on the surface" (whatever that means). A recent search through *Psychological Abstracts* using "Bach" and "flower" as key words yielded nothing from 1963 to 1993. Apparently, not one psychologist has seen fit to do any research on this topic in the past 30 years.

I believe there is little reason to continue the literature search prior to 1963, because only one of the books I read by Bach or his disciples listed any scientific research at all. Kaslof (1988) cited a dissertation written by Weisglas (1979). That study compared two treatment groups and one placebo group on each of about 300 dependent variables—so many that it would have been almost impossible *not* to find that the remedies worked for something. By analogy, try to imagine 300 different lotteries in which each ticket has a one-in-a-hundred chance to win. These odds are not too good, but suppose you had two tickets for each one. Under these conditions your chances of winning are twice as good. In fact, in Weisglas's lottery the Essences "won" five times. Ironically, one of the differences favoring the essence groups, "being sexuality," was not predicted by Bach. The placebo group either did not "win" or, if it did, it was not mentioned in the abstract. Kaslof briefly mentioned another study, but did not list it in the references. It is so vaguely described that nothing can be concluded from it. I sent a stamped, self-addressed envelope to Kaslof asking for a more detailed description, but have received no reply.

It appears as though the only "evidence" to support the many psychological claims made by Bach and his followers are testimonials or case histories (Chancellor 1971; Weeks 1973; Wheeler 1977). For example: "I used to get these mysterious pains in my lower back. Nothing the doctor prescribed did me any good. Someone told me about the Bach Remedies and now I take one every time my back starts acting up. Works like a charm." These kinds of accounts are easy to find in the books written by Bach's faithful. They are also easy to dismiss.

Testimonials should not be taken too seriously. For one thing they are too easily faked. But even if we assume that every testimonial is strictly legitimate, they should not be allowed as substitutes for scientific evidence. For every person who claims that product X is marvelous, there may be ten who feel that it is either worthless or nearly so. The company that manufactures product X is certainly not going to publicize the stories of those who felt that it was useless. But even if they were completely unbiased in their publicity they would probably get fewer complaints than compliments. Unless they feel the product is harmful, consumers usually don't complain; they simply try something else. In other words, testimonials are useless because we have no way of knowing how many people were not helped by a particular product. Some of the people who were

"Even if we assume every testimonial is legitimate, they should not be allowed as a substitute for scientific evidence."

Flowers continued on page 55

Slides in Hell

CLIFFORD A. PICKOVER

"Down, down to hell; and say I sent thee thither."

—Shakespeare, *Henry VI*

An instructive yet diabolical exercise in probability—for students, teachers, and skeptics of all ages. Try it at your own risk.

In this informal essay, I discuss some recent musings on probability in a strange but illustrative example. I hope the findings will appeal to students, teachers, and a wide variety of skeptics, and I look forward to hearing from those of you who performed simulations of the following using a computer.

As background, skeptics are always amazed by the degree to which some individuals improperly use mathematical probabilities in an attempt to win at roulette, interpret numerological and astrological signs, discount evolution, assess the results of ESP tests, determine risks, and even find special meaning in the digits of pi.

As an example, why is it that if all the 3,838,380 ways of choosing 6 lottery numbers out of 40 are equally like-

ly, that the public would prefer the numbers 37 12 7 20 18 17 to 1 2 3 4 5 6? Why do most people bet the next coin-flip yields a tail when I toss a fair coin 10 times and get 10 heads in a row? Why does the public remember the relatively few accurate predictions of "psychics" while forgetting the numerous, incorrect predictions? Why do many people believe that if someone is winning at roulette she will continue to win because she is "hot"; and, paradoxically, if she is losing, many think that she will begin to win because she is "due" for a change in luck? Why are we willing to play the lottery at all? Is it because the potential payoff is so large that it psychologically outweighs the very poor expected return? In general we are poor at estimating reward and penalty versus risk.

Perhaps the public's biggest confusion concerns *conditional probability* and the fact that accurate medical (and other) tests for an effect can be poor predictors of causes. Consider a blood test that is positive 99 percent of the time when a particular cancer is present, and positive 1 percent of the time when the cancer is not present. This seems like a wonderfully accurate test. If your test is positive, you would surely think you have cancer and should take whatever possible actions necessary to combat it. However, if your oncologist is testing for a relatively rare condition, the test can be a miserable indicator of whether you have a particular cancer. For example, if 1 percent of the population has this cancer, then the test will accurately predict whether you have this cancer with a reliability of about 50 percent. You might do just as well to flip a coin! In this example, the problem is that there are as many false positives as true positives; therefore, only half the subjects testing positive actually have cancer. This fact is easy to overlook since we focus on the 99 percent of the time that the test outcome is correct *given that we already know that cancer is present.*

Clifford A. Pickover is author of Keys to Infinity *(Wiley, 1995),* Chaos in Wonderland *(St. Martin's Press, 1994), and many other books on the creative and artistic use of computers. He is currently a research staff member at the IBM Watson Research Center, Yorktown Heights, NY 10598.* E-mail: cliff@watson.ibm.com.

James Becker

Humans Cannot Produce Random Numbers

Sit down at a computer keyboard, or a typewriter, and randomly press the 1 and 0 keys. Try to make the string of numbers as "patternless" as possible. In other words, try to generate random numbers. Here's my first attempt, typing 1 with my left hand and 0 with my right hand:

```
101110001110001010110100
101001010010100010100111
010110001110101000111010
101011101110101011010101
010001010111011100101010
100010100010101110101011
101110101010010101010010
101011101001001000100010
010001001010100010010101
100010101100101001110100
010001111010101010101010
111010101111011010101011
```

Before reading further, try this experiment on yourself and your friends. I have tested dozens of supposedly random sequences typed by colleagues and found that it is curiously difficult for us humans to type patternless sequences. To start with, we would expect about a 50 percent occurrence of each digit, and I did amazingly well. The example above had 49.3 percent 1s and 50.7 percent 0s. Next, we would expect 25 percent occurrences of the following pairs: 00, 11, 01, 10. In fact, doing my best to make a random sequence, I produced 15 percent, 13 percent, 36 percent, 36 percent occurrences, respectively. Apparently my fingers preferred to oscillate rather than to produce doublets like 00 and 11. Perhaps I was trying to avoid clumpiness of digits when in fact strings of identical digits should exist in a truly random sequence. I strongly suspect that, if I were to analyze all possible triplets of digits, I would find that my fingers (and medulla oblongata) also did not behave very randomly.

Do left-handed and right-handed people produce different kinds of sequences? As one tires of typing, does the randomness increase or decrease? Could the statistics for different individuals be used to diagnose any psychological or neurological diseases? Do the percentages tend to characterize, or "fingerprint," a particular individual? These are all unanswered questions.

On a similar topic, Manfred Schroeder, in his *Fractals, Chaos, Power Laws* (Freeman 1991) discusses a machine, called "Shannon's outguessing machine," that analyzes the random head-tails choices of a human contender. In this gambling game, a player selects heads or tails, and a computer attempts to guess the player's selection. If the computer guesses correctly, the human loses money; otherwise the human wins money. Does a player change after losing a throw? Does the player keep on choosing tails if tails has brought two previous wins? Or does the gambler get nervous and select heads next? For humans, such strategies are mostly subconscious, but the machine can uncover the hidden correlations in people's selections and will beat any human after playing many games. Humans are simply not capable of producing random heads or tails, 0s or 1s. Our minds abhor long strings of like outcomes—as would occur naturally in truly random sequences.

Slides in Hell

On a breezy April day last year, I was visiting a local playground where I came

across the most startling piece of recreational equipment. It was a metallic slide with a large hole punched in the chute. To this day, I can't think of any reason it was there, because it seemed rather dangerous. A child usually slid from the top of the slide to the bottom, but it seemed as if a small child could get stuck or even fall through the hole in the chute.

The image of this strange slide stayed in my mind for several months and stimulated the following mental exercise. Consider a metallic slide punched with ten large holes that are equally spaced from top to bottom. If we were to construct such a porous slide, and if the holes were large enough, you'd certainly fall through at least one of the holes during your descent.

For this uncomfortable problem, let's assume that each time you encounter a hole you have a 50 percent chance of sliding through it and into a vile oleaginous substance beneath the slide. For example, when your body passes over the first hole, 1 out of every 2 times you'd expect to fall through the hole into the loathsome liquid below.

At first I asked colleagues the following question. You are offered $1,000 if you can correctly guess which hole a person would fall through as he or she descended the slide. Which hole would you choose? Soon the number of questions started escalating. Here's a summary of the most interesting ones I asked.

1. If you were a gambling person, which hole would you bet a person would fall through?

2. If you were a gambling person, how many attempts would you predict it would require for a person to slide from the top of the slide to the bottom without falling through a single hole.

3. If all the people on earth lined up to slide down a longer, more horrifying slide with 100 holes at a rate of 1 person a second, when would you expect the first person to arrive at the bottom of the slide without falling through any hole? An hour? A day? A decade?

It turns out that an analysis of this problem is not too difficult. The chance of falling through the first hole is 50 percent. The probability of reaching and falling through the second hole is less. Specifically it is the probability that a person didn't fall through the first hole times the probability of falling through the second hole: 0.5 x 0.5 = 25 percent. For the third hole, we have $0.5^3 = 0.125$. This also means that, in a large enough sample, 1/2 of the people will fall through the first hole, 1/4 through the second, 1/8 through the third, etc. We can create a table showing the percent chance of reaching and falling into each hole as a person descends a slide:

Hole #	% chance of reaching and falling into hole
1	50
2	25
3	12.5
4	06.25
5	03.125
6	01.5625
7	00.78125
8	00.390625
9	00.1953125
10	00.09765625

Your chances of reaching and falling into the final hole are slim indeed—only about .09 percent. Therefore, most mathematicians I asked said that, since they were limited to selecting one hole, they would place their money on hole number 1. In other words, individuals would be most likely to fall through this hole. However, one respondent said he would not bet at all because the best chance is only a 50/50 chance.

As for the second question, about how many attempts it would take to reach the bottom without falling through any hole, note that the chances of reaching each succeeding hole are the same as for reaching and falling into the previous one. Therefore, the chances of passing over all the holes are the same as reaching and falling into the last hole. Therefore, the probability is .0009765625; that is, 1,024 attempts would be required by a person, on average, to reach the bottom. Some people I queried suggested that they would bet on a number less than this because the actual events can happen in any order. For example, J. Theodore Schuerzinger from Dartmouth notes that because $1/2^{10}$ people would make it all the way down the slide without falling through any of the holes (1/1,024), this means that 1,023 out of 1,024 people would fall through one of the holes. He notes:

> Using the formula $(1,023/1,024)^x = 1/2$, we can determine that out of the first x people to go down the slide, there is a 50 percent chance that one person will make it down without falling through a hole. The solution $x = 709.4$ satisfies the equation. Thus I would bet that a person would make it all the way down on one of the first 710 attempts. In other words, after 710 attempts, the chance of someone succeeding exceeds 1/2.

What happens if all the people on earth lined up to go down the 100-hole slide at a rate of 1 person a second? The probability of falling through the last hole is a minuscule $0.5^{100} = 7.88 \times 10^{-31}$. The average number of tries that a single person must make to finally arrive at the bottom is $1/(0.5^{100}) = 1.26 \times 10^{30}$ or, to be more precise, it would require

1,267,650,600,228,229,401,496,703,205,376

attempts, on average. (Your gluteus maximus muscles had better be in good shape before you attempt such an experiment.) In other words, we may see one person slide down over all the holes every 1.26×10^{30} attempts. At 1 person/second, we can compute that it would require, on average, about 4×10^{22} years, much longer than the age of the universe. Note also that this would require many more people than the world population can offer. Therefore, no one will reach the bottom of the slide, or, as one respondent said, "They will all try and fail (assuming everyone only gets to try once), or die waiting in line."

Using a similar logic as with the 10-hole problem, after $(2^{100}-1)/(2^{100})$ attempts, the chance of someone succeeding exceeds 1/2.

Simulation of Slides in Hell

I have written computer programs that allow one to mercilessly simulate the process of launching individuals down

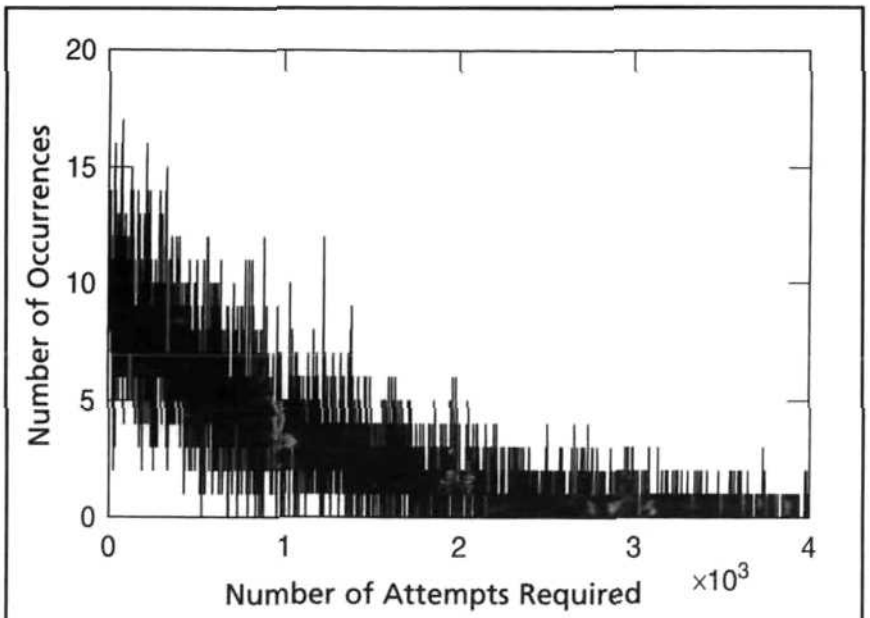
the slide. In particular, the programs create a distribution, shown in Figure 1, of the number of attempts it takes a person to slide down the entire slide without falling through a hole. The program simply continues to launch people down the slide and catalogs how many attempts it takes a person to succeed in reaching the bottom. (BASIC and C program code listings are available to those who write to me.)

The distribution is at first quite unexpected considering that, on average, 1,024 attempts are required to reach the bottom without falling through a hole. There is no peak at 1,024—rather there is a gradual "radioactive" (Poisson) decay from low values of the number of attempts to high values.

When I asked colleagues on the Internet to explain this, Steve Czarnecki, from Owego, New York, was the first individual to provide an interesting explanation for this mystery. To understand his argument, we define a Bernoulli trial as a random experiment with only two possible outcomes. The person reaching a hole undergoes a Bernoulli trial; the individual will either drop or pass over the hole with probability p and $(1-p)$, respectively. Therefore, to make it all the way to the bottom, the person must achieve the "pass over" result of all the individual Bernoulli trials. This probability is given by $P = (1-p)^{10}$, which is 1/1,024 when p is 1/2.

Czarnecki next asks us to forget about the details of the slide itself and instead only observe the people climbing up the ladder to the slide, and also observe whether or not they appear at the bottom (after an appropriate time interval). This means that we are observing *another* random experiment with two possible outcomes: either the person makes it to the bottom, or doesn't. In other words, every time a person tries the slide, it is a Bernoulli trial with outcomes "made it to the bottom" or "didn't make it to the bottom."

We can now interpret the slide problem as an example of a sequence of independent, repeated Bernoulli trials with probability P of success. Here a success occurs when a person makes it to the bottom of the slide. If we let the random variable N represent the number of unsuccessful trials (attempts) required *before* the first success for that person (i.e., success is achieved on trial $N+1$), then N has a geometric density defined by the equation $P(N) = P(1-P)^N$. Here, $P(N)$ is the probability that N unsuccessful trials occur before the successful trial. This is the "exponential decay" law observed in Figure 1. Steve Czarnecki notes that the expected value of N (i.e., the average number of attempts required before the successful trial) will be $E(N) = (1-P)/P$. For the example with 10 holes, 1,023 unsuccessful attempts are required, on average, before the successful attempt. Thus, our intuition that the person will achieve one success out of 1,024 attempts, on the average, is correct.



Distribution of the number of attempts it takes a person to slide down the entire 10-hole slide without falling through a hole.

However, the geometric probability distribution has some surprising implications. For example, Czarnecki points out that the most likely number of unsuccessful trials is zero—in other words, regardless of the odds, success on the first try is always the most probable event! This has the practical consequence that in any game of chance involving betting, one is better off "betting the ranch" on a single hand, rather than spreading one's stake over multiple hands.

Digressions

Here are some additional questions for you to ponder.

1. How would your answers differ to the three main questions asked in this article if, after falling through a hole, you had a 50 percent chance of entering a tube that shot you back up to the previous hole on the slide?

2. How would your answers differ to the three main questions if the probability for falling through the holes decreased by 5 percent for each hole. This might correspond to a slide where the holes got smaller and smaller as you slid down.

3. After I discussed the slides with colleagues, Joe McCauley from Colorado suggested studying the popular game "Chutes and Ladders," also known as "Snakes and Ladders." The game is played on a 10 × 10 checkerboard. The board has 20 to 25 chutes and ladders that transport pieces from one square to another. Perhaps computer simulations, such as those discussed in this article, can answer such questions as, "What is the minimum number of moves required to reach the finish?" and "What is the mean number of moves required to reach the finish?" □

Detecting Photographic Mischief

ROBERT A. BAKER

Camera Clues: A Handbook for Photographic Investigation. By Joe Nickell. 1994. University Press of Kentucky. 234 pp. Hardcover, $26.95.

Joe Nickell's newest book in his continuing series of investigative techniques, procedures, and strategies takes on the subject of photography. In *Camera Clues: A Handbook for Photographic Investigation,* Nickell examines in a most entertaining and educational manner: (1) the use of photography in investigative work; (2) how investigative methods are applied to photographs themselves; (3) many case studies of photographic mysteries and the strategies used in solving them; and (4) how rules of evidence, standards of proof, and other skeptical principles and maxims can be and are used to solve past, present, and future photo enigmas.

Nickell begins with a short, but comprehensive, overview of the history of photography and the development of the photographic process. He then shows us how we can identify and date old photographic postcards, how to distinguish originals from copies, and how to detect fakes. This chapter is also illustrated with a number of case studies of historical photo mysteries. Two of the more interesting are the Commander Robert Peary controversy and the infamous "MIA photos." The former is concerned with the question of whether Peary did or did not reach the North Pole before the arctic explorer Frederick Cook. After analyzing Peary's expedition photographs using a sophisticated technique called "photogrammetric rectification," i.e., determining the sun's elevation at the time the photographs were taken, it was clear that Peary was at the Pole when he said he was.

The latter case, that of a 1991 photo showing three Americans supposedly being held captive in Southeast Asia, was shown to be a cruel hoax. Other mysteries presented involve Civil War photos, Lincoln photos, air combat photos, and Klondike gold rush photos.

Nickell next turns to the use of photographs for identification. Included are case histories involving "mug" shots, composite portraits, and procedures for identifying people in old photographs and comparing facial features. Controversies and questions of authenticity surrounding photos of Emily Dickinson, John Wilkes Booth, Billy the Kid, Lee Harvey Oswald, and John Demjanjuk (mistaken for the Nazi war criminal "Ivan the Terrible") are analyzed and clarified. In a chapter on investigative photography, Nickell shows how to use photography at "crime scenes," i.e., in forensic cases, and examines photomacrography, spectral techniques, and laser technology. The development and use of surreptitious photography is particularly intriguing—especially its use in criminalistics, as with the Zapruder film following the Kennedy assassination in Dallas.

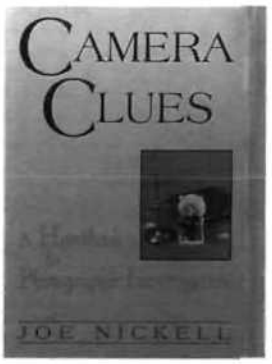
Of definite interest to all skeptics is Nickell's Chapter 6: "Trick Photography." Here Nickell stresses that whoever said "Pictures don't lie" was obviously neither a photographer nor a skeptic.

Combining two or more images to make a deceptive composite is one of the oldest of photographic tricks and involves making composite scenes, collages, (pasting together various pictures and cutouts), "sandwich" pictures (putting negatives or transparencies atop each other), photo-montages, and multiple exposures. In the latter example, even Polaroid camera models can be compromised. The Georgia skeptic and researcher Anson Kennedy, for example, discovered how to make "spirit pictures" with the supposedly unfakeable Polaroid. Kennedy discovered "that the Polaroid one-step camera can be used with the film door open, thus preventing the exposed picture from being fed out and developed; black tape can be then placed across

the front of the film pack to prevent light leakage. . . . Then a second exposure is made in the normal way." The resulting prints can be downright "magical." Slides can also be sandwiched together, and a photo enlarger can be used to transfer the image to the Polaroid film, which is then placed in the camera and developed normally. Again, producing "spiritual" results.

Other effective camera tricks involve perspective (e.g., a fisherman holding a small fish much nearer to the camera than he is makes the fish appear to be much larger than it is); using filters and other lens attachments to achieve special (and deceptive) effects; as well as motion effects and other sorts of camera tricks used so widely in the movies.

Darkroom tricks, such as cropping and photograms are also discussed, as well as the marvelous art of retouching and the use of computer technology, which can now fool even photo experts. Not only *still* pictures but *motion pictures* can now be altered, for example, to remove all the wires used to make Robin Williams "fly" in the movie *Hook*. The chapter concludes with a lengthy review of the various ways and means of detecting photographic deception, including examination of the sites where the pictures were allegedly made and examining negatives to find other spurious and anomalous features.



The final two chapters are devoted to photography and the paranormal. The next to last deals with how paranormal photographs—of spirits and ghosts, UFOs, legendary creatures like fairies and the Loch Ness monster, and "levitating" Transcendental Meditators—are made and foisted on the public as authentic. Kirlian auras, spy lenses, and the use of hidden surveillance cameras are other topics that will fill the skeptic's heart with delight.

Nickell's final chapter is devoted to "paranormal photographs," that is, those pictures alleged to have been produced by paranormal forces and means—miracle pictures, photos made by spirits, and photographs supposedly produced through the use of psychokinesis and other supernatural powers. Discussed at length are pictures allegedly of Jesus and Mary and the Shroud of Turin, along with other "miraculous" pictures, such as the Image of Guadalupe. Images of "The Golden Door," or "The Gateway to Heaven," and pictures of the "Holy Spirit" are also fun and easy to make if you have a Polaroid and are in a "do-it-yourself" mood. Equally informative and entertaining are all those photographs ostensibly taken by the spirits themselves, i.e., spooks who use unnatural means to put images on rolls of unexposed film, "psychokinetic" photos, such as those made by Ted Serios and Uri Geller, and the "real ones" made in the same manner by Randi using a "gismo" (instead of PK) are also covered. □

Robert A. Baker is professor emeritus of psychology at the University of Kentucky.

Twentieth-Century Witch Trials

MARK W. DURM

The Myth of Repressed Memory: False Memories and Allegations of Sexual Abuse. By Elizabeth Loftus and Katherine Ketcham. St. Martin's Press, New York, 1994. 336 pp. Hardcover, U.S. $22.95, Can. $29.99.

> . . . Two kinds of truth: story-truth and happening-truth. Happening-truth is the indisputable black-and-white reality of "at such and such a time this happened, and then this, and then that." Story-truth is the colorized version, breathing luminous life into the inert shell of the past, waking up the dead, sparking emotion, inspiring a search for meaning.

The excerpt above is from Elizabeth Loftus and Katherine Ketcham's *The Myth of Repressed Memory.* This text is must reading for all students of human behavior, both professionals and laypeople. The authors relate convincingly that most of our memories are "story-truth" and that very few, too few, are "happening-truth." Some memories are even false truth! An example of the latter is found in the report of an experiment by Loftus, a leading expert on memory at the University of Washington. She found that when "false memories" were implanted in people's minds, they came to believe in them even more strongly than they did in their memories of actual events.

Loftus reveals just how faulty our memory really is. She exposes the recent trend of sex-abuse charges based on "repressed memories" as the twentieth-century version of Salem witch trials. (Loftus outlined many such cases in her article "Remembering Dangerously," in the March/April 1995 SKEPTICAL INQUIRER.)

Throughout this book, the authors relate how families all across America are being torn apart and how some family members, mostly fathers, are being sent to prison because of a new psychological phenomenon: recovered memory. For example, the pathetic plight of 51-year-old George Franklin, who was charged with the sex abuse and murder of Susan Nason, is given in

excruciating detail. The only evidence against Franklin was the memory, repressed for 20 years, of his daughter, Eileen Franklin, who gave five different versions of how the memory came back to her. George Franklin was found guilty of first-degree murder.

Loftus and Ketcham say that despite decades of research there is not one controlled scientific study that supports the idea that memories of trauma can be driven into the unconscious and then reliably recovered years later. Yet George Franklin was found guilty. Guilt resulting from "story-truth." The hysteria of Salem, Massachusetts, has spread to Main Street, America.

Another example of a person's life being destroyed through "repressed memories" was the case of Paul Ingram. Ingram was accused by his two daughters of sexually molesting them. Paul, his wife Sandy, and their daughters were members of the Church of Living Water, a fundamentalist Christian denomination in Olympia, Washington. This particular church teaches that the devil is a physical presence with powerful dark powers.

As the result of the Ingram daughters, Ericka and Julie, attending a church retreat in 1988, Paul Ingram was accused by them of sexual molestation based on the recovery of "repressed memories." The recall of Ericka's "memories" was aided by Karla Frank, a clairvoyant Christian at the retreat. Julie also would later recall being molested by her father.

What really confounded this case were particular beliefs of the Church of Living Water. As Loftus and Ketcham related:

> . . . As a faithful member of a fundamentalist church, he [Paul] was *certainly well versed in the idea that* Satan inspires evil deeds in the weak and godless and then blocks all memories of such malevolent actions from conscious awareness. A primitive force of pure evil, Satan is *anachronistically capable* of the high-tech scrambling of human minds and memories.

Ingram, who initially vehemently denied abusing his daughters, eventually began to question his own memory: "If his daughters were telling the truth—and he had always taught them to tell the truth—then Satan must have driven him to evil-doing and erased his memory."

Furthermore, the "repressed memories" of Ericka and Julie would later involve satanic ritual abuse. Ericka would "recall" that from the time she was 5 years old until she was 12 her father in the middle of the night would carry her from her bed to the barn, where her mother and their friends waited. Ericka remembered her father wearing a gown and a hat resembling a Viking helmet with horns. Inside the barn "the group crowded around the table and everyone took turns stabbing a six-to-eight-month-old baby with a knife [until] . . . the infant was dead."

Ericka's repressed memories would soon become even stranger. They would involve her father forcing her to have sex with goats and dogs. She also recalled her mother having sex with animals and that the satanic-cult members even aborted her (Ericka's) own baby with a coat hanger and rubbed the damaged, bloodied fetus all over her naked body.

Paul Ingram, who had first confessed to sexually molesting his children, later, after his mind had cleared, pleaded to the sentencing judge that he was not guilty of *any* of these crimes. Ingram was sentenced to 20 years in prison. He is now in prison for something that Loftus is convinced never took place—for truth that never happened.

Finally, although Loftus and Ketcham acknowledge childhood sexual abuse is a serious problem, they skillfully and artfully challenge the claims of "recovered-memory therapists" that half of all women were abused as children and that half of this number suffer from completely repressed memories. In other words, these "therapists" claim that 25 percent of *all* women in America are walking around not realizing they were abused as children. The authors aptly quote Friedrich Nietzsche: "Whoever fights monsters should see to it that, in the process, he does not become a monster."

This book was dedicated "to the principles of science, which demand that any claim to 'truth' be accompanied by proof." Amen! Let us not allow a "repressed memory" mindset to become a trendy psychology of the late twentieth century. □

Mark W. Durm is professor of psychology at Athens State College, Athens, Alabama.

Myths, Monsters, and Memory

KEN KURSON

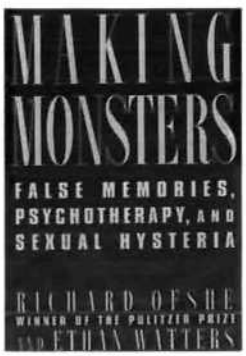
◀ *Making Monsters.* By Richard Ofshe and Ethan Watters. Scribner's, New York, 1994. 340 pp. Paper, $22.00.

Recovered memories are memories said to have been buried in the subconscious of someone who's been on the receiving end of severe trauma. Victims of incest, satanic rituals, UFO abduction, past lives and multiple lives, and many others have been reporting newly remembered horrible occurrences from the past—usually from their early childhood and always at the knee of heroically brave therapists. Richard Ofshe and Ethan Watters don't buy it.

By accumulating voluminous data on the recovered-memory theory and its practitioners, the authors of *Making Monsters* (a Pulitzer prize–winning social psychologist and a freelance writer) do not simply challenge the idea

of recovered memory, they destroy it. Proponents of the theory are time and again exposed as willing to destroy the lives of their patients to further their unsound theories and publish badly reasoned bestsellers like *The Courage to Heal* and *Victims No Longer.*

Sadly, the examples of such exploitation are manifold. But the book's greatest strength is its story-telling. Some of the sample cases cited as proof of the theory's absurdity waver between tragic and comic. The case of Barbara Maddox, for example, would be darkly amusing were it not so typical in its destructive force. Maddox seeks counsel about her failing marriage from Gail Carr Feldman, a hypnotherapist and self-proclaimed recovered-memory expert. Although at the outset Maddox possesses no actual memories of childhood trauma, by the time she is "cured" she remembers participating in a satanic cult that featured ritual murders and cannibalism, as well as a past life as a Jamaican girl named Denise (who also was beaten by her abusive father).



It is with cases like this that *Making Monsters* illustrates the dangers and self-serving aims of the recovered-memory trend. The greatest danger, however, is scarcely mentioned by the authors: By crying wolf with their patients' supposed memories of childhood abuse, these unscrupulous therapists are helping deaden American sensitivity to actual abuse. □

Ken Kurson is with United Media (United Features Syndicate and Newspaper Enterprise Association) in New York City.

Fiction's Elegant Statement for Skepticism

LISA SHEPHERD

The Hippopotamus. By Stephen Fry. Random House, U.K., 1994. 259 pp. Hardcover, $29.95.

Although skeptical literature generally resides in the realm of nonfiction, at least one novel has been published that makes a clear and elegant statement about the fundamental need for skepticism. That novel is Stephen Fry's *The Hippopotamus.*

The Hippopotamus is Fry's third book and second novel. It is told mostly in first-person accounts, via an exchange of letters between Ted Wallace and his goddaughter, who hires the aging ex-poet to investigate what she believes to be a series of miracles occurring on the estate of one of Ted's oldest friends.

Ted, the main narrator throughout, is an appealing character, considering he is an embittered, curmudgeonly lecher with alcoholic tendencies. He is also a keen judge of human nature, witty and even kindly, in a brusque and unusual way. Aware of his own mental limitations and those of others, he is capable of both sharp insight and depthless crudity. Fry's prose has many of the same qualities, actually, alternately shrewd and comically base as the mood requires.

Ted arrives at the Swafford mansion with no preconceptions, only an injunction to watch and learn. The various other characters, family members and a few guests, are introduced quickly. All are lively and distinct. All are searching for the same thing: the source of the healing miracles that seem to be occurring on the estate. A woman is somehow cured of terminal cancer; a sad, plain young girl gains courage and beauty; even a dying horse is brought back from the edge. Fairly quickly one of the family sons emerges as the focus of all the attention—an intensely virtuous boy named David.

Although the basic story is simple, the plot is tightly woven and beautifully realized. Set up along the lines of a classic English murder mystery, with the climactic scene taking place during a dinner party with a raging storm outside, each piece of the answer is displayed for the reader. Those of a skeptical frame of mind will see the final solution, but not the path leading there until very near the end. In fact, the plot is resolved almost too well, as the graceful solution causes the reader to sit back and admire Fry's cunning rather than remain caught in his superb prose.

Stephen Fry possesses an exceptional ear for language, for the rhythms and cadence of speech. He obviously loves words, as all the best writers do, and plays with them to great effect. One of the most evocative passages in the book comes during Ted's musings about the difference between the silence of the country and the silence of the city:

> In spite of the evidence of life all around me . . . I was conscious of an absolute deadness all around. . . . London at half-past four . . . absolutely zings with life. The blasts of the newspaper vans thundering through empty streets, the hissing micturations of the derelicts, the quick staccato of cheap stilettos clicking down alleys. . . .

The book is filled with such passages, subtle, poetic passages that delight the mind. It is also filled with

equally subtle and delightful insights into the human condition—nothing earth-shattering, nothing wholly new or unspoken, but each fresh revelation delivered with honesty and humor and a sense of reality, of hard truth.

All the separate elements that make this such a wonderful book weave together to form a lasting final impression, a simple direct message about the need for skepticism in our world. Skepticism does not close the mind, as many of those caught up in distortions of UFOlogy, New Ageism, or ESP are wont to declare. Instead, skepticism *opens* the mind to every explanation for any possible occurrence. To rationally explain something, you must first understand what causes it. Combined with that message is the assertion that every human being is capable of "miraculous" healing of themselves and others. What is required, however, is not supernatural powers or divine assistance but an appreciation for the infinite complexity of existence. By reverting to the cliché of "supernatural" or "divine" we simply ignore the wonder of the real world.

The true skeptic never takes the easy way out, via the supernatural, but explores the myriad possibilities of the real world and the amazing power of the rational human mind to comprehend and explain the mysteries it contains. As Fry subtly asserts throughout *The Hippopotamus,* the skeptic is the true dreamer, the true visionary, the true healer—because the skeptic finds answers not in the divine, but in the human heart. □

Lisa Shepherd, 21, is a free-lance writer. She said she underwent a mental epiphany the first time she picked up a copy of the SKEPTICAL INQUIRER *and discovered that there are obviously a great many rational people in the world.*

A Failed Look At Memory and Perceptions

TERENCE HINES

Hidden Memories: Voices and Visions from Within. By Robert A. Baker. Prometheus Books, Buffalo, N.Y., 1992. 373 pp. Hardcover. $27.95.

Editor's note: We normally don't publish reviews of three-year-old books. There are, however, special circumstances in this case. In any event, scientists and skeptics must welcome criticism—even harsh criticism, as evident here—from within their own ranks. Both the reviewer, Terence Hines, and the book's author, Robert Baker, are frequent contributors to our Book Review section. Following the review, we publish Baker's response.

In *Hidden Memories,* psychologist Robert Baker attempts to draw on modern research in memory, perception, and related fields to provide nonparanormal explanations for claims of past lives, ghosts and similar apparitions, alien abductions, out-of-body experiences, the seeming abilities of mediums, channelers, and mystics, and the like. This is an important and ambitious undertaking since there is a wealth of research that supports nonparanormal explanations for all these phenomena. Alas, the book fails to provide a coherent explanation of this research.

The organization of the book is inadequate at all levels. Time after time a given paragraph will discuss one topic and the next will cover an unrelated topic, with nothing to tie the two subjects together. The result is a text that lurches along. Topics are introduced, discussed for a while, and then dropped, only to be picked up again later. Repetitions occur in which the same material is discussed in very much the same way in different places. Although there are 17 pages of references, citations linking sources of quotations in the text to the references are poor. Often a source is given in the text, but not listed in the references. Or the entry in the reference list is incomplete or wrong. For example, on pages 156-157 the case of Jane Evans, who seemed to be able to provide details of a past life, is discussed. This discussion follows the description of the Evans case in my own book *Pseudoscience and the Paranormal* (Prometheus Books, 1988) almost line for line. There is a difference between Baker's text and my own. In my text, on page 74, I quote Melvin Harris's comments on Evans in "Are Past-Life Regressions Evidence of Reincarnation?" (*Free Inquiry,* 6[4]:25, 1986):

> ". . . every single piece of information given by Jane Evans can be traced to de Wohl's fictional account. She used his fictional sequences in exactly the same order and even speaks of his fictional characters, such as Curio and Valerius, as if they were real people."

In Baker's book, on page 15, we read

> Every single piece of information given by Mrs. Evans could be traced to De Wohl's book, and Mrs. Evans used his fictional sequences in exactly the same order as he had, and even spoke of De Wohl's fictional characters, Curio and Valerius, as if they had been real.

The difference is that in Baker's text, no quotation marks appeared around this material and Harris is nowhere credited.

Another problem is that technical terms are often used but are either

never defined or not defined until well after their first use. For example, the title of the second chapter includes the term "cryptomnesia," but this rather obscure term is not defined until 24 pages into the chapter.

The book is full of factual errors, inadequate explanations, and failures to discuss large areas of relevant research. The discussions of the brain and the physiological bases of memory in Chapter 1 are especially good examples of mistaken interpretations and factual errors. The origin of the neocortex is placed at 100,000 years ago in humans. In fact, it originated millions of years ago and is found, in varying amounts, in all mammals. It is further stated that it took humans a thousand years "to learn to use this 'new' brain." This statement is contradicted by what is known about the evolution of the brain.

Another example occurs in Table 2B (p. 53), where it is noted, correctly, that some substances that act as neurotransmitters in the nervous system are also found outside the nervous system in various organs. From this Baker speculates that memory is not located only in the brain, but may also be located in other organs, such as the adrenal glands! To quote: "if memory is dependent on hormones, and is holographic, finding memory hormones in many sites outside the brain moves [Karl] Lashley's engram outside the brain and into other glandular organs" (p. 51). In fact, neurotransmitters found outside the nervous system play many different chemical roles in the physiology of the organs in which they are found. These roles are totally unrelated to their function as neurotransmitters.

Other mistakes occur in various places. On page 56 it is stated that sleeping organisms are in a coma. On page 73 the philosopher Adolf Grünbaum, one of the most articulate and effective modern critics of psychoanalysis, is termed a "Freudian apologist." On page 173 a brain structure called the corpus callosum is said to be found only in "the higher and most intelligent creatures." In fact, it is found in all mammals. On page 176 it is stated that the chief phenomena in a psychomotor seizure and a hypnotic trance are identical.

Baker argues that individuals who claim to have been sexually abused in satanic-ritual situations really have been abused, but not by Satanists. Their abuse fantasies "represent a fear deriving from an abused childhood, and they have taken a number of urban legend themes and woven them into tales of suffering" (p. 130). There is not a shred of evidence to support this view, and much evidence against it (Hicks, *In Pursuit of Satan,* Prometheus Books, 1991; Victor, *Satanic Panic,* Open Court, 1993).

A final serious problem is Baker's frequent failure to discuss material that would strengthen his argument and better inform readers about the research on the various topics discussed. For example, in Chapter 4, "Hypnosis: The Gateway to Fantasy-Land," none of the evidence is discussed showing that hypnosis increases a person's suggestibility and that it makes people more likely to "remember" events that did not occur and more confident that a now less reliable memory is really more reliable. This is a major omission. In Chapter 7, on hallucinations, and Chapters 5 and 6, on communication with the dead, no mention is made of hypnagogic or hypnopompic imagery. (This is puzzling, because Baker did write about these subjects in his earlier book, *They Call It Hypnosis,* Prometheus, 1990.) Both are vital to the understanding of reports of ghosts and similar phenomena. (In fairness, he introduces the terms in his Introduction, on p. 22.) Finally, one can only wonder how it is possible to write a chapter that has a major focus on out-of-body experiences (Chap. 6) and give Susan Blackmore's extensive work on this topic only one-third of a sentence (p. 267).

Terence Hines is a professor of psychology at Pace University, Pleasantville, N.Y.

Robert A. Baker Responds

Obviously, from Terence Hines's remarks my book *Hidden Memories* failed to live up to his expectations and high standards. Some of his criticisms are fair and well taken, others are not. His comments on organization, flow, and repetitiousness are his subjective editorial opinions, and I will not comment on them. However, none of these comments were raised by Prometheus's editors, who did, in my opinion, an excellent job of editing my work.

Regarding citations and the reference to Jane Evans and Melvin Harris, it is true that I omitted specific reference to Harris's work on page 157 at the end of the first paragraph. Rather than an attempted "plagiarism" as Hines implies, the last sentence of that paragraph reads: "According to Melvin Harris, who investigated the case, the evidence is overwhelming that this book. . . ." And in the following paragraph, the last sentence reads: "As Harris clearly demonstrated, Mrs. Evans had the ability to store vivid stories in her subconscious." Most people reading this material would not assume that my intentions were to deny Harris full credit for it. The source of this material was page 162 of Harris's book *Investigating the Unexplained* (Prometheus, 1986). Nothing was taken from Hines.

Concerning Hines's example of technical terms not being defined, he made a poor choice in selecting "cryptomnesia." His assertion that the term "cryptomnesia" is not defined until 24 pages into the chapter is grossly mistaken; the term is defined in the very first sentence of Chapter 2 as follows:

> Cryptomnesia, the power of the mind to recall things of which there is no conscious memory, is much more common than most people realize. (p. 78)

Concerning the discussion of the brain and the physiological bases of memory, Hines is correct that the neocortex developed millions of years ago as part of our heritage from the primates, but truly "modern" man did not appear until the Cro-Magnon brain showed a tremendous increase over that of the Neanderthal. Despite what Hines avers, I did not conclude that "memory is located in other organs such as the adrenal glands." Instead, I was merely commenting on Bergland's speculation that various brain hormones do play an important and significant role in the overall memory process. To interpret these comments otherwise is to make me out to be a fool. This is clearly Hines's intent when he quotes these examples out of context. Neither Bergland's logical and reasonable speculation nor my interpretation of it deserves to be ridiculed or scorned.

As for my statement on page 56, "Sleep is the only time in the organism's life when there is little or no activity and the organism is in a coma . . ."; the secondary meaning of the word "coma" from the Greek and meaning "deep sleep" is "stupor." I feel sure that the average reader would understand that I did not mean to imply ordinary sleep is a pathological condition.

Regarding my referral to Grünbaum as a "Freudian apologist," I am far from being alone in considering Grünbaum an "apologist." The well-known psychiatrist Garth Wood, in his book *The Myth of Neurosis* (Harper & Row, 1987), states on page 269:

> . . . Adolf Grünbaum, the philosopher and Freudian apologist, states unequivocally about psychoanalysis: "Its scientific foundations are impoverished." He continues: "To say that the theory is *ill-founded* does not mean it is false. I'm trying to lay bare the logical structure of the theory, and to show what must be done *if suitable evidence is to be found.*" [Italics added.]

Those who are familiar with Grünbaum's work know he damns psychoanalysis with strong praise and many regrets that Freud's work is not scientifically sound.

As for the corpus callosum being found in only the "higher and more intelligent creatures," I was implying that it is not found in lower and less intelligent creatures, such as insects.

The statement on page 176, in which he claims that I believe a psychomotor seizure and a hypnotic trance are identical, is taken from an entire section titled "Hypnosis and the Epilepsies." The careful reader of this section knows very well that the relation between hypnotic behavior and psychomotor seizures is well established and that many of Mesmer's patients were also epileptics. Hines fails to mention that the last sentence of this section on page 176 clearly states: "Of course in most instances of clinical and laboratory 'hypnosis' with non-epileptoid clients we have no reason whatsoever to suspect, nor do we find, any EEG differences between people who are wide awake and those who are reputed to be 'hypnotized.'" I also refer the reader to my earlier work *They Call It Hypnosis* (Prometheus, 1990), which makes it abundantly clear that hypnosis is primarily a turning on of one's imagination.

Hines's comments concerning my failure to discuss hypnotic suggestibility and hypnopompic and hypnagogic imagery are certainly fair. Since I had already discussed these topics at great length in a number of earlier papers and in my book on hypnosis, I believed—erroneously perhaps—that further discussion would be superfluous.

As for my failure to devote more space to Susan Blackmore's work on the NDE experience, her splendid article "Near-Death Experiences: In or Out of the Body" (*SI*, Fall 1991) did not appear until *Hidden Memories* had already gone to press. When Blackmore's book *Dying to Live* (Prometheus, 1993) did appear, my book was already two years old. To compensate for my neglect, however, I did publish a highly favorable review of Blackmore's book in the Fall 1994 SKEPTICAL INQUIRER.

My discussion of satanic ritual abuse and the large number of abuse fantasies is much broader and more accurate than Hines makes it appear. My suggestion that some abused individuals may ascribe their abuse to Satanists—after therapeutic brainwashing—was exactly that: a hypothesis. Were there evidence to support it, I would have cited it. In no way, however, did I make it a major thesis.

In re-reading Hines's initial comments I may have found the source of his great displeasure. First, *Hidden Memories* was never meant to be "the important and ambitious undertaking" Hines assumed it to be. Instead, my intentions were to discuss a number of different topics, such as cryptomnesia and other anomalies of memory, people who claimed to have visited other planets, people who claimed to have talked with the dead, people who have suffered from hallucinations and delusions, and some other unusual aspects of alien abductions—topics that I believed would be of interest to skeptics. Apparently I did not write the book Hines wanted me to.

Despite Hines's negative opinion, a number of other skeptics and reviewers were able to find some merit in the book and have gone so far as to recommend it to others. I also should mention that I have prepared a revised and improved version of the book. It is currently under consideration by Prometheus.

In summary, I am both puzzled and chagrined at Hines's unprovoked attack on my relatively harmless book. Despite the flaws of *Hidden Memories*—its errors and omissions—I believe it is a much better, more accurate and reliable book than Hines would have us believe. If any of my readers agree with this assessment—or have other comments—I would appreciate hearing from you.

Robert Baker
3495 Castleton Way North
Lexington, KY 40517

New Books

Abell's Exploration of the Universe, 7th edition. David Morrison, Sidney Wolff, Andrew Fraknoi. Saunders College Publishing, Philadelphia, 1995. 682 pp., hardcover. The latest revised edition of the classic textbook *Exploration of the Universe,* first introduced by the late astronomer George Abell in 1964 and widely used ever since. Presents a comprehensive, up-to-date summary of the facts of astronomy, an introduction to the rational exploration of nature, and a clear view of the history and character of science and scientific thinking. This edition (Andrew Fraknoi is an added coauthor) features updated sections incorporating the latest astronomical developments and a new epilogue tying together the grand threads developed throughout the book.

Astronomy: From the Earth to the Universe, 4th edition. Jay M. Pasachoff. Saunders College Publishing, Philadelphia, 1995. 635 pp., paper. Latest edition of this highly readable astronomy text. Describes the current state of astronomy, both the fundamentals and the exciting advances now taking place. The author says one of his aims is to educate voters and prospective voters in the hope they will support scientific research. 750 color photographs and 250 drawings.

***Be Happier Starting Now. Ray Sahelian,* M.D.** Be Happier Press, P.O. Box 12619, Marina Del Rey, CA 90295, 1994. 200 pp. ($12.00 + $3.00 shipping) paper. A self-actualization book different from any of its genre. In addressing one of the most universal of human quests—happiness—it promotes a humanist approach. Spirituality is explained as a sense of connection associated with brain chemicals, such as serotonin and endorphins. The mind-body connection is explained in terms of interactions of the neural, hormonal, and immune systems.

The Bermuda Triangle Mystery—Solved. Larry Kusche. Prometheus Books, Amherst, N.Y. 1995. 302 pp. $16.95, paper. A welcome new edition, with an update, of a classic work of skeptical investigation. Kusche's calm, methodical investigation, going back to original accident reports wherever possible, actually solved the "mystery" of the Bermuda Triangle and showed that it was what he calls a "manufactured mystery."

The Corruption of Reality. John F. Schumaker. Prometheus Books, Amherst, N.Y., 1995. 289 pp. An examination of religion, hypnosis, and psychopathology as expressions of the unique human ability to modify and regulate reality. The brain's remarkable ability to process information along multiple pathways allows us to distort reality in strategic ways that help us cope.

Earth's First Steps. Jerry MacDonald. Johnson Books, 1880 South 57th Court, Boulder, CO 80301, 1994. 290 pp., $22.95, hardcover. Subtitled "Tracking Life Before the Dinosaurs," this is the story of the discovery by MacDonald of hundreds of predinosaurian fossil footprint trackways in late Paleozoic (Permian) rock of southern New Mexico's Robledo Mountains. MacDonald's trackway discovery has since been recognized by the Smithsonian and Carnegie museums as the most important Permian footprints site in North America.

Entities: Angels, Spirits, Demons, and Other Alien Beings. Joe Nickell. Prometheus Books, Amherst N.Y., 1995. 297 pp., $24.95, hardcover. The latest of *this prolific investigative writer's works evaluates* dozens of cases reporting spirits, theological beings, and alien creatures. Nickell puts to good use his background as a detective, knowledge of forensic science, and determination to apply the methods of critical analysis to casting light on dozens of cases in which some kind of "entity" has supposedly been manifested.

A Mathematician Reads the Newspaper. John Allen Paulos. Basic Books, 10 E. 53rd Street, New York, NY 10022, 1995. 224 pp., $18.00, paper. Mathematics professor Paulos, author of *Innumeracy* and *Beyond Innumeracy,* here shows how basic mathematical knowledge can prevent you from being duped by stories in the media. In a series of short inquiries, he examines the numbers that make the news in economics, politics, affirmative action, technological risk, health, sports, celebrity features, and more. His aim is to provide an appreciation of the role of mathematics in understanding social issues and "a keener skepticism of its uses, nonuses, misuses, and abuses in the daily paper."

Psychology, 4th edition. David G. Myers. Worth Publishers, 33 Irving Place, New York, NY 10003, 1995. 693 pp., hardcover. Latest edition of psychology text (basic vision: "to merge rigorous science with a broad human perspective") has been revised to provide enhanced emphasis on thinking critically. The opening chapter is "Thinking Critically With Psychological Science," and abundant "Thinking Critically About . . ." boxes within later chapters reinforce that theme. Examples of such topics: unconscious influence, firewalking, hypnosis, eyewitness recall, repressed memory, risk perception, trial marriages, and pseudo personality assessments.

Science Versus Pseudoscience. Nathan Aaseng. Franklin Watts, 95 Madison Ave., New York, NY 10016, 1994. 144 pp. Here's something rare: a book for young people critically examining pseudoscience. After opening chapters on false information and understanding science, the author groups claims into categories of mind and spirit, the human body, Earth, and the cosmos and provides critical assessments. Offers ten useful guideposts for determining what science is. Has an epilogue on the importance of recognizing pseudoscience. (To be reviewed in a future issue.)

Witch-Children. Hans Sebald. Prometheus Books, Amherst, N.Y. 14228, 1995. 265 pp., $24.95. A troubling look by a social scientist at the "devastating" role played by children in two eras of hysteria: the witch-hunt craze of the 16th and 17th centuries and the contemporary epidemic of children accusing adults of molestation, often in a setting of satanic rituals and witchcraft. Finds strong similarities between the two eras. Examines the unscrutinized credibility afforded children in these periods of hysteria (in which adults drop their natural skepticism) and provides insights from a social-psychological viewpoint.

—Kendrick Frazier, EDITOR

Articles of Note

Asher, Brad. "A Shaman-Killing Case on Puget Sound, 1873-1874." *Pacific Northwest Quarterly,* 86(1): 17-24, Winter 1994/95. In Washington Territory in 1874 an American Indian named Harry Fisk stood trial for killing another American Indian. He was acquitted on the grounds that he thought the other man was making his wife ill through sorcery.

Barron, Cheryll Aimee. "Mantra for the Moment." *Buzz,* February 1995, pp. 76-79, 111. Lively and generally critical feature article on how, to the amusement (and occasionally embarrassment) of many expatriate Indians in America, Deepak Chopra's best-selling repackaging of the ancient Hindu folk medicine Ayurveda has become the rage of New Agers. Typical is a quote from a fellow Indian living in California: "Who knows what that fellow is talking about?"

Bartholomew, Robert E. "Disease, Disorder, or Deception?" *Journal of Nervous and Mental Disease,* 182(6): 331-338, 1994. Examines 37 cases of latah—a chronic conditioned behavior that includes repeating words, obscenities, automatic obedience, and hypersuggestibility—within a Malay extended family. Concludes that latah is a social construction of Western-trained universalist scientists.

Bartholomew, Robert E. "Tarantism, Dancing Mania, and Demonopathy: The Anthro-Political Aspects of 'Mass Psychogenic Illness.'" *Psychological Medicine,* 24:281-306, 1994. Study questions the widely held assumption that the phenomenon known as mass psychogenic illness (MPI) exists per se in nature as a psychiatric disorder.

Bem, Daryl J., and Charles Honorton. "Does Psi Exist? Replicable Evidence for an Anomalous Process of Information Transfer." *Psychological Bulletin,* 115(1):4-18, 1994. This is the published paper by Bem and Honorton that argues that ganzfeld experiments have achieved replication rates and effect sizes in attempting to demonstrate psi (anomalous processes of information transfer) sufficient to warrant bringing the data to the attention of the wider psychological community. After reviewing Hyman's and Honorton's competing databases of ganzfeld experiments, the paper summarizes the results of 11 new ganzfeld studies that Bem and Honorton contend comply with guidelines jointly authored by Hyman and Honorton. This paper is immediately followed with a reply from Hyman ("Anomaly or Artifact? Comments on *Bem and Honorton,*" pp. 19-24). Hyman says that although Bem and Honorton's 11 ganzfeld experiments are superior to previous parapsychological experiments, the tests of randomization were inadequate, the results showed important inconsistencies with previous experiments, and the data contain a unique pattern that may reflect a systematic artifact. Bem follows with a brief response challenging Hyman's counterclaim and presenting new analyses.

Bevir, Mark. "The West Turns Eastward." *Journal of the American Academy of Religion,* 62(3):747-767, Fall 1994. Madame Blavatsky, 19th century writer and spiritualist, was the major influence in steering American occultism toward Eastern philosophies.

Brun, Todd. "Physicists Shouldn't Be Too Open-minded About Pseudoscience." *APA News* (American Physical Society), February 1995, p. 4. This is a response to three letters (October 1994, p. 4) that criticized an earlier column by James Randi ("It's Time for Science to Take a Stand Against Popular Superstition," *APA News,* June 1994, p. 12). Randi outlined a wide variety of pseudoscientific claims popularly accepted by the public and mostly ignored by scientists. The subsequent letter writers accused him of being closed-minded and intolerant of new ideas. Brun expresses shock that there wasn't one letter in support of Randi and calls on physicists to support critical thinking and be willing to support people like Randi who "are doing what they can to fight" unsubstantiated "sensational claims."

French, Chris. Untitled critical review of John Beloff's Parapsychology: A Concise History. *Philosophical Psychology,* 7:409-411, 1994.

Harrison, Barbara Grizzuti. "Quantum Blither." *Mirabella,* October 1994, pp. 40ff. Deepak Chopra's trendy mishmash of physics, medicine, and mysticism is selling millions of books. Is he peddling old-fashioned snake oil in new bottles? A refreshingly skeptical send-up in a women's fashion magazine, of the New Age prophet of "quantum healing" and entrepreneur of *Ayurvedic enterprises.* "*It doesn't make* sense, at least not to me," says the author. "There is just enough derivative Indian mysticism in Chopra's work to lend his words the appearance of substance and sanity—if one is awfully forgiving and credulous and needy."

Loevinger, Lee. "Science and Evidence." *35 Jurimetrics Journal,* Winter 1995, pp. 153-190. Review of new criteria for admitting scientific evidence, a result of the 1993 U.S. Supreme Court ruling that superseded the previous 1923 Frye rule. Concludes that the new standard, ruled in *Daubert* v. *Merrell Dow Pharmaceuticals,* imposes a greater responsibility on trial courts. *It will* require a more realistic and understanding judicial appraisal of the complexities of modern science, including a more rigorous standard for reception of scientific evidence in many cases. The result should be to make the law more responsive to the needs of a scientific and technological society.

Marin, Rick, and Ari Posner. "Channeling Alien Babies." *Newsweek,* March 20, 1995, p. 68. Brief critical blast at NBC-TV's "disturbingly delusional New Age séance called 'The Other Side.'" Adds that the network's reward for "pandering to the lowest crackpot denominator has been dismal ratings."

Moore, Timothy E. "Subliminal Self-Help Auditory Tapes: An Empirical Test of Perceptual Consequences." *Canadian Journal of Behavioral Science,* 27(1): 9-20, January 1995. Subjects heard hundreds of five-second samples from two commercially made tapes, identical except for the "subliminal" messages they contained. The subjects were not able to tell the tapes apart at a rate better than chance.

Pierce, Sidney K., Gerald N. Smith, Jr., Timothy K. Maugel, and Eugenie Clark.

"On the Giant Octopus (*giganteus*) and the Bermuda Blob: Homage to A. E. Verrill." *Biology Bulletin,* 188:219-230, April 1995. In 1896, a carcass washed up on a beach at St. Augustine, Florida. From a description sent to him, Yale professor A. E. Verrill first identified it as the remains of a colossal octopus, and he named it *Octopus giganteus.* Shortly afterward, however, he reversed himself and concluded that it was part of a large vertebrate, most likely a whale. The authors recently obtained preserved samples of that carcass and a second one washed up on Bermuda in 1988. After electron microscope and biochemical analyses, they conclude that they are large pieces of vertebrate skin, the Bermuda sample from a large fish, the Florida sample indeed from a huge whale. ". . . With profound sadness at ruining a favorite legend," they conclude, "we find no basis for the existence of *Octopus giganteus.*"

Thalbourne, Michael A., and Christopher C. French. "Paranormal Belief, Manic-Depressiveness, and Magical Ideation: A Replication." *Person. Individ. Diff.,* 18(2):291-292, 1995. Study of 114 English university students sought to confirm a previous study in Australia that suggested that people who believe in and claim experience of the paranormal tend to score higher on measures of manic-depressiveness and magical ideation. Paranormal belief was indeed significantly correlated with these measures.

Wheelwright, Jeff. "Atomic Overreaction." *Atlantic Monthly,* April 1995, pp. 26-30, 38. A close look at plutonium's "unearned" reputation as the pre-eminent poison. References to plutonium as the ultimate poison and carcinogen—widely and uncritically repeated in the antinuclear and antienvironmental movements—are here carefully examined by a science reporter and found wanting. Filled with good history and perspective, this is a thoughtful and balanced look at a subject too often approached with bias and disdain for scientific evidence. See also "Plutonium's Bad Rap," by David Schoonmaker in the March-April 1995 *American Scientist,* vol. 83, p. 132. The author says few gulfs between public perception and scientific evidence "are as wide as the one that separates the popular and scientific convictions about the hazards of plutonium."

CORRECTION: In this column in our March-April issue, a reference to a *Smithsonian* article by Wernick on conspiracy theories should have said it appeared in that magazine's March 1994 issue.

—Kendrick Frazier
and Robert Lopresti

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Is the Skeptical Position Plausible?

Beloff Replies to His Critics

In our May/June issue we published parapsychologist John Beloff's article "The Skeptical Position: Is It Tenable?" and five critical responses to it. For this issue we invited him to respond briefly to those criticisms. We also invited philosopher Antony Flew to comment.

My critics and I have much in common. We all appeal to evidence and argument, not to faith. Yet we differ on the question of whether paranormal phenomena exist. This is understandable; for the experimental evidence is marginal and hence vulnerable to suggestions of methodological flaws, while the strong evidence tends to be spontaneous and hence dependent on testimony. That is why I proclaimed that the skeptical position is indeed *tenable.* I shall now try to explain why my critics fail to persuade me that it is *plausible.*

Susan Blackmore is undoubtedly the most open-minded of my five critics. Indeed, I am still hopeful that, after another turn of the wheel that may bring evidence even firmer than the ganzfield evidence, she may again change her stance. Her reason for rejecting the psi hypothesis is an unusual one, namely, that it lacks explanatory power. The point is, however, that the existence of psi is not just one more scientific hypothesis; it calls into question the whole physicalistic worldview, according to which all events must ultimately be explicable as due to the interaction of particles. OBEs and NDEs are indeed psychophysiological phenomena, as are our ordinary nocturnal dreams, and she is welcome to study them as such; but that is no reason to deny the occasional psi component that may intrude.

Ray Hyman, like James Alcock, would like us to ignore the historical cases on principle. But his attempt to dispose of D. D. Home is much too facile. The sitters, in Home's case, included persons as sophisticated as Francis Galton. If the illumination was really as poor as Hyman would have us believe, they would not have hesitated to say so. Yet, in a letter that Galton wrote to Darwin, he expresses himself as fully satisfied with the way in which Crookes had conducted the séance he attended. Naturally, we would all prefer to have been present in person! But, unlike Hyman and Alcock, I do not believe that, in the words of Henry Ford, "History is bunk!"

I come finally to Paul Kurtz, who, unlike Martin Gardner, shows that one can disagree with someone and still be civil. As a fellow humanist, may I say that I admire his efforts to uphold reason and denounce superstition. I suspect, however, that he is deceiving himself in denying that he is a "reductionist physicalist" and that what worries him about paranormal phenomena is precisely that they resist such reductionism. He invites me to "examine the observed phenomena objectively . . . and evaluate them under strictly controlled conditions." But that is precisely what Robert Morris and his team are doing now here at the University of Edinburgh with my full blessing. To be an "absolute paranormalist" one would need to have either witnessed or experienced some paranormal phenomenon that one could not possibly doubt. Never having had that privilege, I remain a de facto paranormalist.

John Beloff
Department of Psychology
University of Edinburgh
Edinburgh EH8 9JZ, Scotland
U.K.

Antony Flew Comments

I welcomed John Beloff's paper (*SI*, May/June 1995) and congratulate the SKEPTICAL INQUIRER on publishing it, with subsequent comments by various well-informed scholars. I see myself as a de facto skeptic about the alleged phenomena of parapsychology: the necessary but also sufficient condition of my joining the club of believers is—to quote James Alcock—"a demon-

stration of psi that researchers in general can reproduce by setting up the specified conditions and following a specific procedure.

Since Beloff has commented on my published views, my primary duty here is to address those comments. Beloff says that throughout my "long career as a skeptic" I have "consistently rejected precognition as nonsensical." This is not quite correct. What I have consistently rejected—since contributing in 1954 to an Aristotelian Society symposium on "Could an Effect Precede Its Cause"—is precognition defined as involving the causing, by an event occurring at a later time two, of an effect that had already occurred at an earlier time one. For that later and supposedly backwardly causing event must necessarily: either be causally redundant, since its putative earlier effect has—by the hypothesis—already occurred and hence has presumably already been sufficiently caused, or else be taken to cause *not* to have occurred an event that—again by the hypothesis—has already occurred. Which is the most manifest of contradictions.

Since my objection was and is to precognition defined specifically as I've stated, it is not an objection that would hold against wildly improbable true forecasting as such. So if I "were to dream consistently of the winner of tomorrow's horserace," as Beloff wrote, then I could do rather more than "express surprise at my astonishing run of luck." For, if I were to be so fortunate, then I could and surely ought to concede that my performances constituted evidence for the reality of the particular kind of paranormal phenomenon that is best described, noncommittally, as P psi-gamma.[1]

Of course that would not explain its occurrence. But then, as Susan Blackmore says: "Believing in psi does not get me anywhere. I cannot seem to understand . . . any better if I admit psi." The admission of the reality of a phenomenon does not as such constitute its explanation. A main reason for rejecting such terms as *telepathy, clairvoyance,* and *precognition* is that they misleadingly suggest that a true explanation has been provided when in fact it has not; and perhaps never could be.[2]

Beloff also writes: "Antony Flew (1978) endorses Hume with respect to all past claims of a paranormal kind and so could be classed as an absolute skeptic with respect to the historical record, but even he concedes that, if parapsychologists were able to satisfy repeatability . . . we would then, indeed, have to revise our assumptions."

I am sure that it is correct to claim that Hume himself was indeed an "absolute skeptic with respect to the historical record." But all that he explicitly maintained he had established in the relevant Section X of his *Enquiry Concerning Human Understanding* was that "a miracle can never be proved so as to be the foundation of a system of religion."[3] It can never be *proved* because critical historians in assessing the available evidence have to depend on what they know or believe that they know about what is probable or improbable and possible or impossible; and, absent repeatability, they will surely believe that they know that paranormal occurrences are physically impossible. But now suppose that a neo-Humean historian is confronted with what seems to him or her to be overwhelming evidence that some paranormal event did in fact occur. Until and unless repeatability reveals that its occurrence was after all physically possible, he cannot as a historian concede that that evidence proves that it did occur. It therefore remains for him to return the peculiarly, and most appropriately Scottish verdict "Not proven." And that, surely, amounts to a de facto rather than an absolute skepticism.

I myself do not admit to absolute skepticism with respect to any conceivable occurrences. Indeed such absolute skepticism is, surely, a contradiction in terms. But although I am no longer nearly as confident as I once was that Trevor Hall proved all his cases against paranormal occurrences, I remain completely confident—with James Alcock, Ray Hyman, Martin Gardner, and of course David Hume—that no one, absent that perennially absent repeatability demonstration, can *prove* any case *for.*

Antony Flew
26 Alexandria Road
Reading RG1 5PD
U.K.

Notes

1. See Antony Flew, ed., *Readings in the Philosophical Problems of Parapsychology* (Buffalo, N.Y.: Prometheus Books, 1987), Chap. 8.

2. Ibid.

3. Page 127 in the standard Oxford edition: emphasis added.

Lighting Candles, Cursing Darkness

RALPH ESTLING

No, I'm sorry, but there is just no getting around the fact that we expect scientists to make more sense than just ordinary people. And that's where the trouble lies.

Scientists themselves (at any rate, the ones among them who make sense) are quick to challenge this contention, pointing out that there is no earthly reason to assume, or even hope, that scientists as a whole are wiser (and not merely in possession of certain facts) than any other body of professionals—professional politicians, professional footballers, professional professors, or anything else—that, to sum up, among their number the proportion of good, mediocre, and plain lousy is no different from that of any other organized body of men and women.

"The big question of the day," various busy minds are now asking, "is simple: Can science give us answers based on certainty?" And as the question (not of the day but of the past 400 years or so) *is* simple, I can give a simple answer, the simplest there is: No.

It is not science's job to be certain. That is religion's job. Or politics's job. Or Freudian psychoanalysis' job. It is science's job to make sense.

Why, for example, do I so enjoy reading things by Haldane, Medawar, Carl Sagan, Martin Gardner, Hawking, Hoyle, Bondi, Feynman, Maynard Smith, Stephen Jay Gould, Richard Dawkins, Leakey (all of them), Asimov, Bronowski, and a hundred others like them (well, several others), when I wouldn't give a tinker's dam, even if I was sure what it was, to read volumes by great minds in the realms of theology, for instance. The idea of reading a book authored by or, far more likely, ghosted for a politician is too gruesome even to be considered. No, we expect our scientist—physicist, chemist, astronomer, geologist, biologist, paleontologist—to be more profound, more aware, more conscious, less inclined than others to opt for the easy, cheering, reassuring lie. Why should this be so?

One answer is that it is not so, it is just plain wrong, both factually and ethically, to believe a person trained in and practicing a scientific vocation is on average more capable of sound thinking, less capable of self-deception, than anyone else. Why should a scientist be more conversant with good sense than, say, an advertising executive, an accountant, a bishop? Perhaps here is where one possible answer lies.

A scientist (I mean a real one and not a reasonable facsimile of one, and there are plenty of them lying about of course) is interested in something that matters profoundly—or ought to—but is not out to sell you something. I'm not sure what he *is* out for. Disinterested pursuit of understanding? That would be nice. And I believe it, in a way, although I'm not always all that certain of the "disinterested" bit.

Maybe the answer I'm looking for, or a part of it, lies in the word *pursuit,* the acknowledgment that the thing he wants is, one, worth pursuing and, two, not yet attained, that it lies outside himself and that this is "a good thing." For once a thing is attained, what happens to the pursuit of it? The framers of the Declaration of Independence were not quite professional politicians at the time (many of them would later become so, unfortunately) and were therefore still capable of seeing that the value of happiness lay in its being pursued, not in its obtainment, either in Heaven or on Earth.

There is a grumbling, growling, dissatisfied, grouchy restlessness in a scientist, a good one, that I find appealing; and not being a scientist, I might of course be kidding myself in believing that this is the mark of a good scientist or that there are a lot of them around, even granting they are just a minority of their profession. I've little doubt that smugness and self-satisfaction form the larger part of the behavior patterns of most scientists; I just think, and I can be wrong, that the minority who don't think like this is larger among scientists than among nonscientists. I don't know. As soon as I see the notion written down in such a concrete fashion like this I get cold feet. I think maybe I'm only fooling

Brad Marshall

myself. Self-deception is no respecter of persons. Still, there it is. Whatever "it" is.

Perhaps "it" is the acceptance, if only tacit, that it is not enough to light one candle in the darkness. One must also curse the darkness, the eternal, all-encompassing darkness, the darkness that will beat us, in the end. Lighting a candle, or even a whole bevy of candles, is a good thing, a vitally necessary thing; but it is, when you come down to it, a pretty petty, lackluster achievement. The darkness remains, is hardly aware of the candle. And so it remains for a good scientist to curse that darkness loud and long. Indeed, never to stop cursing it, for all the candles he may light. For every scientist (every real one) knows that prizes handed out by Nobel committees and all the other prizes of all the other committees are, when you come down to it, prizes given for failure to achieve, prizes awarded for the awareness of the laughably, cryably little candle that has been lit in the unutterable vastness of the dark.

Perhaps, just possibly, the real scientists among us know this and are constantly aware of it. And so they are certain of less and in pursuit of more, and so, being less certain of more things, they can understand more, and better, than the rest of us, and are restless and grumpy and dissatisfied with things but most especially with themselves. And that's why I like them better (the better ones) than I like philosophers and other men and women skilled in life's little wisdoms who aren't grumpy at all. Or restless.

For they, the calm, satisfied ones, have lit their little candles and they quietly, or not so quietly, rejoice in what they have done, congratulating themselves as they bask in the tiny flicker. For they are the Certain Ones, those who Know, those whose conclusions, as Peter Medawar wrote in *The Future of Man,* mark "the end of a train of thought instead of the beginning of an exploration."

They have forgotten to curse the darkness. □

Ralph Estling writes from Ilminster, Somerset, England.

Quoteworthy

"Albert Overhauser, Stuart Distinguished Professor of Physics at Purdue, was among the eight [winners of the 1994 National Medal of Science]. Best known for the dynamic nuclear polarization effect that bears his name, he also predicted spin and charge density waves. . . . In introducing the recipients at a press conference yesterday, Jack Gibbons, the President's Science Advisor, . . . noted that the prediction of the Overhauser effect was initially greeted with skepticism. Reflecting a widely held perception, a reporter asked how Overhauser had overcome the notorious resistance of scientists to new ideas. Overhauser said that in less than a year Slichter at Illinois had confirmed his predictions experimentally, and that ended the doubts."

—Robert L. Park,
"What's New?"
American Physical Society,
September 9, 1994

European Skeptics Meet in Germany

The Seventh European Skeptics Conference was convened May 4–7, 1995, in Rossdorf (near Darmstadt), Germany. The conference was cosponsored by the European Council of Skeptical Societies (ECSO), CSICOP, and the German Society for the Scientific Investigation of Para-Science (GWUP). The conference was organized by Amardeo Sarma, the energetic executive director of GWUP, which has over 1,000 readers of its newsletter. Well over 120 participants from all over Europe took part in the conference.

Coinciding with the 50th anniversary of the end of World War II, the meetings were significant. It enabled skeptics to point out that Germany in the 1930s and 40s was ruled by the Nazi Party, which based its ideology on pseudoscientific theories of Aryan racial superiority. Had a vigorous skeptics' movement existed in Germany before the war, capable of criticizing the questionable pseudoscientific premises of Nazi ideology, the terrible genocide against millions of innocent people might have been averted. Thus the existence of pseudoscience is not of mere academic interest, for when it is tied to a false ideology it can have extremely negative effects on society. Another blatant illustration of this is the way Lamarck's theories of evolution were taken up by Lysenko and promoted by Stalin in the Soviet Union. Tim Trachet, of the Belgian Skeptics, maintained that even today historical research is exploited by conspiratorial theorists.

The conference focused on a wide range of topics—although the main emphasis was on fringe medicine and the dangers that homeopathy and other alternative "health cures" pose to human health. This was illustrated by Professors Ernst Habermann and Irmgard Oepen of Germany and Wim Betz of Belgium. The ECSO Board, chaired by Professor Cornelis de Jager of the Netherlands, decided to undertake as its first major effort to educate the European public—including members of the European parliament—about the lack of clinical scientific verification of homeopathy.

Other topics of interest were the nature of deception, sensory illusions, and the difficulties in accepting uncorroborated eyewitness testimony of paranormal events. I read a paper about the relationship of paranormal beliefs to neo-spirituality and the fact that we are often dealing with a religious question rather than a scientific one. John Maddox, retiring editor of *Nature*, described his involvement in the French homeopathy controversy with Benveniste, and James Randi presented a pessimistic appraisal of the psychic scene in America. Rob Nanninga reported on an interesting test in the Netherlands of 50 astrologers, which had negative results. The keynote address of the conference was delivered by Thomas von Randow, science correspondent for Germany's leading newspaper, *Die Zeit*.

The European Skeptics will meet next year (1996) in Buffalo at the first World Skeptics Congress, where we will celebrate the 20th anniversary of CSICOP; they plan to meet in Spain in 1997.

—Paul Kurtz, Chairman, CSICOP

SI Editor Receives Humanist Pioneer Award

Kendrick Frazier, Editor of the SKEPTICAL INQUIRER, has been presented the American Humanist Association's Humanist Pioneer Award for 1995. According to the AHA, the award is presented to those whose lifetime careers or special personal endeavors have contributed significantly to the advancement of the human condition in one or more special ways. In naming Frazier for the award, the AHA board "took special note of your efforts to counter pseudoscience, various frauds, and flummery where people's lives are diminished or threatened, and in addition for your efforts to publish the fine magazine that the SKEPTICAL INQUIRER is, a unique journal bringing needed information, to the general public and scientists, that would seldom be featured in institutional journals." The award was presented at the association's annual conference, May 19-21, in Scottsdale, Arizona.

Joe Nickell Joins CSICOP Staff

We are pleased to announce that Joe Nickell has joined the CSICOP staff in Amherst, New York. Dr. Nickell, formerly a technical writing instructor at the University of Kentucky at Lexington, will be CSICOP's Senior Research Scholar at the new Center for Inquiry complex.

Skeptical Inquirer readers will recognize him as the author of numerous investigative articles, on crop circles, spontaneous human combustion, miracles, and the Shroud of Turin. They may also know him as the author or coauthor of such books as *Inquest on the Shroud of Turin, Secrets of the Supernatural, Camera Clues, Mysterious Realms, Entities, The Magic Detectives,* and *Missing Pieces.*

Nickell has long been a CSICOP Fellow, and is one of CSICOP's more active media contacts, frequently appearing on television and radio programs, and regularly giving magazine and newspaper interviews. His expertise and his graciousness under pressure are well known, and he is now able to share in the exhausting task of handling the hundreds of media calls we receive annually.

More important, he will help create new CSICOP projects to expand our presence and public visibility. Further, he is working with the local and regional skeptical groups that are springing up around the world and networking with other scientific and educational organizations.

Klingon *from page 5*

For example, *olc* for eye, *zu* for blue, and *fra* for human combine to produce *frazolca,* meaning a blue-eyed woman. Lancelot Hogben explained his semi-artificial language in a Penguin book titled *Interglossa* (1943).

Many of these rival tongues are discussed in Marina Yaguello's fascinating *Lunatic Lovers of Language* (1991) translated into English from the original French by Catherine Slater. Yaguello is a teacher of linguistics at the University of Dakar, in Senegal. I have not seen Mary Slaughter's *Universal Languages* (1982).

Yaguello also covers synthetic languages in works of fiction, such as Newspeak in George Orwell's *1984* and the slang language invented by Anthony Burgess for *A Clockwork Orange.* She also discusses the Martian language created by the French medium Hélène Smith, and neologisms in the works of Swift and Rabelais. To the latter we can add the hundreds of coined words in the fantasies of Lord Dunsany, James Branch Cabell, L. Frank Baum, and in books said to be channeled by supermortals, such as *Oahspe* and *The Urantia Book.*

Edward Kelly, a sixteenth-century crystal-gazer, scoundrel, and friend of the British astrologer John Dee, devised a language called Enochian. He claimed it was spoken by angels and by Adam before it degenerated into Hebrew after the Fall.

For completeness I should also mention artificial languages that arise in subcultures, such as Shelta Thari, spoken by tinkers in England, and Carny, spoken by American carnival workers. A peculiar language called Bootling flourishes only in the small town of Boonville, California. We all know pig-latin, and there are other, less familiar ways of distorting a natural language. There are the "unknown tongues" spoken by the early Christians, and by Mormons, Pentecostals, and other recent sects when the Holy Spirit seizes them. Nor should we ignore the sign language used by the hearing impaired, the talking drums of Africa, the smoke signals of American Indians, communication by whistling in the Canary Islands, and the languages used by artificial-intelligence researchers for conversing with computers.

In crude science fiction, extraterrestrials inexplicably speak English, but in more sophisticated science fantasy they speak alien tongues often described with detailed linguistic rules and words. Every conceivable way of communicating without speech has also been exploited: telepathy (as in Wells's *Men Like Gods*), dancing, whistling, smelling, using musical tones, and so on. In James Blish's *VOR* an alien "speaks" by altering the color of a patch on his forehead. For information about science-fiction artificial languages, see the entry "Linguistics" in Peter Nichols's *Encyclopedia of Science Fiction,* and "Language" in the index of Everett Bleiler's monumental *Science-Fiction: The Early Years.* □

Flowers *from page 35*

not helped by the Bach Remedies might have felt so foolish about having taken flower essences as a remedy for serious psychological problems that they wouldn't *want* anyone to know.

Any favorable results stemming from the use of the Bach Flower Remedies are probably the result of nothing more than a placebo effect. As most readers of the SKEPTICAL INQUIRER know, a placebo is not a biologically active ingredient, but it often "works" because the person who takes it believes that it is effective. Placebo effects have been demonstrated time and time again and have been found in a wide variety of situations involving a large number of psychosomatic disorders. Bach was apparently an individual with excellent language skills and a great deal of confidence in his ability to heal. He was probably adept at convincing patients that they were going to get better. He was certainly charismatic enough to attract a loyal band of followers. Ironically, one of these stalwarts provided an anecdote that lends itself nicely to a placebo interpretation. In describing her hero's healing powers, Weeks (1973: 120) noted that the Bach Flower Remedies seemed to work best for those who had traveled a very long distance to be treated by the master. It is reasonable to think that those who traveled a long way on English roads in the 1930s to see a doctor might have been highly motivated to improve—so motivated that they might have been especially susceptible to the belief that this charismatic doctor and his unusual treatment would bring them relief from their troubles.

In summary, there seems to be no reliable, unambiguous evidence to support any of the multitude of claims made by Bach and his followers. The Bach Remedies that I "inherited" when I bought my health-food store are currently under the counter where they can't be seen. If people come in and ask for them I will sell them, but I don't intend to reorder; and I have instructed my employees to make no claims whatsoever about their usefulness. Perhaps the time has come to wake up and stop smelling the flowers.

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Moon *from page 32*

To investigate this possibility, I associated the date of each disaster with the corresponding day of the anomalistic lunar cycle, the period of passage from one perigee to another. This period is more variable than the synodic period. For the 6,032 anomalistic periods in the interval 1528-1976, the shortest is 24.66 days, the longest is 28.56 days, and the mean is 27.55 days. Figure 4 shows the frequency of disasters with anomalistic period; the dip near full moon seems to have disappeared. To check this I performed a different statistical test, a runs test for randomness. The χ^2 test calculates the probability that the null test is true, in this instance that there is no difference between the distribution under study and a random distribution. Only marked deviations from randomness permit rejecting the null hypothesis with a high level of confidence. The runs test calculates directly the probability that the distribution is random. For the association of disasters with synodic period the probability of randomness is 22.9 percent, whereas for the association with anomalistic period the probability becomes 50.0 percent. As a final check I applied spectral analysis to the data used to produce both Figure 3 and Figure 4. For both data sets the first two components of the spectrum received nearly 70 percent of the power, whereas the components near full moon (12, 14, 16, 18 days) or the middle of the anomalistic period (10, 12, 14, 16 days) all received less than 3 percent each.

The evidence, therefore, indicates no correlation of maritime disasters with the lunar anomalistic period, a possible weak correlation (at best marginal statistical significance as measured by the chi-square test and the runs test, negative as measured by spectral analysis) with the lunar synodic period. Given the lack of correlation with the anomalistic period, rather than attribute to something astrological this possible weak correlation of the full moon with lower disasters, it seems more reasonable to accept an obvious alternative: the light of the full moon may help prevent maritime disasters.

To answer the rhetorical title of this paper, the moon did not contribute to sinking the *Titanic* either, although a full moon might have helped to save her. (The moon was two days from new on April 15, 1912, and rose as a thin crescent more than two hours after the ship had sunk.)

(Because the resolution of the spectral analysis was insufficient to check for a possible correlation of Uranus's synodic period of 367 days with maritime disasters, I applied the runs test to the data. The date of each disaster was associated with the day of the corresponding Uranian synodic cycle of 367 days. If there exists an astrological effect associated with Uranus's synodic period, disasters should occur more frequently near 367 days. But a runs test calculates a probability of 87.5 percent for the distribution's being random. Thus, neither Uranus's orbital period nor its synodic period bears any relation to maritime disasters.)

We conclude that neither planetary configurations nor lunar periods have anything to do with nonwartime maritime disasters. One could extend this study to include other types of disasters—air crashes, earthquakes, floods, and so forth—but given the negative results obtained so far such an effort hardly seems worthwhile.

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For more information, contact Barry Karr, Executive Director of CSICOP. All inquiries will be held in the strictest confidence.

Letters *from page 2*

those who earn it to those who don't—to the status of a moral absolute, overriding any considerations of community solidarity and even social order.

Roger Cooke
Burlington, Vt.

"Knocking Science for Fun and Profit" was irritatingly political. One early disclaimer does not eliminate the effect of referring to the antiscience academics as "the academic left." They could as easily have been called the "academic fringe," or the "anti-empiricists," thus avoiding the implication that all leftists are members of an antiscience lunatic fringe.

In a similar manner, the article reinforces, if not actually mimics, the recent trend I've seen in other media of portraying fringe environmental groups, at least implicitly, as mainstream. Environmentalism is not like astrology, which is in its entirety a pseudoscience and can be dismissed as such. When you dismiss the environmentalist fringe, you need to delineate what you are dismissing and what you are not. I saw *SI* cited recently (although not quoted) on an Internet news group as saying that there has never been an ozone-hole problem. Although clearly not the intent of your article on that subject (Fall 1994), that idea is what some people take away if such articles simply debunk extremist views, without describing and documenting the legitimacy of more moderate opinions. Such documentation is undoubtedly hard to do in a magazine of your size; nevertheless, when you take on such topics, you have a responsibility to do so with care.

With respect to feminism, in refuting the antiscience position of some scholars who call themselves feminist, you are dealing with at best one branch of feminism, and sometimes not even that; and you need to take great care not to implicate the more robust and complex general feminist ideology as antiscientific.

I was very pleased to see a review that provided some counter-balance to the "Knocking Science" article. Overall, I continue to find *SI* a fascinating and reliable magazine.

Gregory Tillman
Urbana, Ill.

Paul R. Gross and Norman Levitt present an accurate account of the attack on science from the academic left. While I agree with the article, I do take exception to one point in it—the reference to the grave contamination of anthropology.

The use of anthropology is an unwarranted generalization. Anthropology, the study of humankind, is divided into four major subfields—biological/physical, archaeological, sociocultural, and linguistics. As a biological and forensic anthropologist, I can assure you that biological anthropologists adhere to the tenets of the scientific method. We are biologists who focus on the human and other primate species, past and present. We are not social scientists, nor do we embrace some methods employed to gain knowledge by other anthropological subfields, i.e., sociocultural anthropology.

Biological anthropologists are also on the front lines, exposing the pseudoscience of the creationist, Afrocentrist, and multicultural agendas as it relates to anthropology. Biological anthropology has not been contaminated and should not be lumped with the other subfields.

John K. Lundy
Professor, Anthropology Program
Clark College
Vancouver, Wash.

The issue of antiscience is chilling. However, I propose the following plan to unite the various elite, antilogic ideologues with the foot soldiers of traditional science.

Each group, each "way of knowing," including the traditionalists, will select from among their adherents scientists and engineers to design an airplane. These vehicles will be built and run onto the tarmac. Each group will then be given the opportunity to board any one of them for the test flight. A wise observer once observed: There are no sects in geometry.

Frank Guldseth
Arlington, Va.

Taner Edis and Amy Sue Bix end their review of Gross and Levitt's *Higher Superstition* by saying: "However, this should not obscure our need for critical thought about science as a social activity." In fact, this seems to be a major theme of the review. My question is this, just where do Gross and Levitt imply that there is no need for critical thought about science as a social activity? When exactly did they imply that there can be no legitimate criticism of science?

James M. Cargal
Mathematics Department
Troy State University
Montgomery, Ala.

Thank you, thank you Edis and Bix for pointing out that bashing antiscience may not be in our best interests. Bashing may promote righteous feuds rather than reasoned discussion. I vote instead for calm, rationality, and heroic sacrifices in our attempts to curtail bias and promote reason.

Also, thank you *SI* for publishing more than one review of the book in the same issue! Variety offers a greater perspective from which to judge any book.

Karen Achor
Laguna Hills, Calif.

At the end of a cogent analysis of the very real left-wing assault upon rationality, Keith Parsons, in his review of *Higher Superstition*, says: "Indeed [Gross and Levitt] are rightly concerned about the comfort their book might give to Rush Limbaugh types for whom every feminist is a 'feminazi' and every environmentalist is a tree-hugging fanatic."

Limbaugh has many intellectual sins to answer for: he is profoundly ignorant of the scientific method and its implications in the physical-science arena. Worse, he often uses dubious papers and reports to support his particular agenda.

But even the most casual listener to his show knows he *never* refers to *all* feminists as "feminazis," nor does he call *all* environmentalists "tree-hugging fanatics." He has always defined his views in political terms against *specific* ultra-extremists in the various leftist movements, be they feminist or environmental. It is clear the reviewer was ignorant of Limbaugh's positions or he was making a cheap political point of his own.

Curtis D. Cushman
Olympia, Wash.

Your magazine is certainly head and shoulders ahead of any other publication that I have seen in its efforts to debunk superstitious beliefs and to enlighten the public on the many mysteries of the world. You are doing a great service to humankind. Thank you.

In Gross and Levitt's article, "Knocking Science for Fun and Profit," there is a certain arrogance in the highfalutin' verbiage they use. Its purpose seems to be to impress rather than inform. Their tone infers an attitude of the high and mighty and unassailable authority, a real turn-off for us common folk. Perhaps they should study the characteristics of Richard Feynman or review Effective Writing 101.

Jerry Hobbs
Lutz, Fla.

Paul R. Gross and Norman Levitt respond:

We owe John Lundy an apology. Biological anthropology is a vigorous science, among whose practitioners we have good friends. Our reference was insufficiently explicit: it should have been to cultural anthropology. Even there, however, there are scholars—friends again—who strive to restore rigor and objectivity to the discipline. The trouble is with a popular if not majority view in the business: that objectivity is a delusion.

Roger Cooke, again an old friend of one of us (NL), from graduate school days, argues that the right, academic and otherwise, also contributes relentlessly to anti-science and indeed, more broadly, to irrationalism. It was not our purpose to obscure this well-know fact. Our foci, which already had to be very broad (and for which we knew we would be taken to task), were chosen because antagonism to science among those committed to the political left is in important ways a new phenomenon, one to which defenders of reasoned inquiry are just awakening. By concentrating on this distressing novelty we hoped to avoid diluting it. This is not to say that rightist antiscience is innocuous: it never has been and it isn't now. It is simply something most of our hoped-for readers know from long experience.

George Rowell points out that not all the left's misperceptions and misrepresentations of science are new. That is of course true: some go back a long way. We devote several paragraphs to the question, some specifically to Karl Marx's own views on science, in Higher Superstition.

We regret that Jerry Hobbs, whose admiration of Richard Feynmann cannot possibly exceed our own, hates our style of writing enough to denounce it, and to recommend that we take a course in Effective Writing. It just goes to prove that you don't need to know something in order to teach it. One of us has *taught it. In any case, we must hope that if our expository caprices put him off, the ideas themselves didn't.*

Karen Achor joins reviewers Edis an Bix in calling for a more conciliatory tone in the argument (and of course it is *an argument). Maybe their ". . . calm, rationality, and heroic sacrifices. . . ," in hopes of curtailing bias and promoting reason, are the way of wisdom; but that is not our experience of these issues in these times. It is certainly not the practice of the other side, as even a cursory reading of its claims would show. Sometimes stupidity or evil elicit prophetic language. Time alone tells whether the prophet had things right.*

Gregory Tillman is convinced that really *our agendas are* political: *that we are avid to paint all leftists as a lunatic fringe. This is odd and a little disturbing. One of us (NL) thinks of himself as an active leftist, commited thereto on most political and economic questions. The other (PGR), while perhaps no longer as active, has worked for left causes most of his life, including putting said life in danger by dissecting, on Boston's CBS-affiliate radio station, the anti-abortion arguments of a Prince of the Church. Of course we realized that the term "academic left" would evoke anger. We tried, to the point of boring the reader, to specify its meaning and to explain why we judge it the best among problematical alternatives.*

We agree, finally, and sadly, to James Cargal's strong and economically phrased point-in-a-question; and we look forward to the performance, some day, of Frank Guldseth's Gedankenexperiment*—but, so to speak, for real, in the metal.*

Antiscience in Academia: "Feminism and Science"

As Noretta Koertge points out ("How Feminism Is Now Alienating Women from Science," *SI*, March/April), certain feminist ideas have flipped 180° in the past two decades. The resulting new paradigms do more than just promote sloppy thinking. They usher in weird double standards.

If these new paradigms are correct, Talking Barbie spoke a basic Truth when she lamented, "Gee, math is hard." Math, we are told, *is* harder for women; inherently, genetically harder. It runs counter to feminine ways of knowing. (On the other hand, the Kens of the world—dominant white Euromales with plastic hair—pick up linear concepts like numbers in a jiff.)

You'd think Mattel would have been praised for its nurturing corporate philosophy. Instead, Mattel was accused of sexism and had to rewire (well, rechip) a slew of Talking Barbies. . . .

Criticizing an idea has become equivalent to criticizing the idea-holder. That's bad enough, but there's an even weirder flip side: Ideas are judged not on their own merits, but on the attributes of their adherents. This is one frightening brand of sympathetic magic, folks. It tells us that medical knowledge gained in German concentration camps is magically evil and should not be used 50 years later to alleviate suffering. It tells us that oddballs are something more than just odd. They are *wrong*. Good-bye Hypatia. Good-bye Newton. Toodle-oo Curie and Einstein.

Promoters of these new paradigms don't seek equal opportunity for equal ability. They seek to lower standards, to make all reality-models equal, while paradoxically elevating their own beliefs.

A. Tubbesing
Grafton, Ohio

I write to express my appreciation of, and agreement with, Noretta Koertge's article.

A few years ago, I completed my Ph.D. in nursing at Case Western Reserve University in Cleveland. When I began the course work there was a cohort of vehement feminists in the program. It became rapidly apparent to me that not only did these women have strong opinions about traditional science, but they also felt that men had no place in nursing.

These feminists were critical of empirical methodologies and proposed that nursing science should be much more qualitative and based only on intuitive knowledge. It was the feminists' contention that traditional science was paternalistic and male-oriented and thus suspect at all levels. They stated that men's and women's minds operated in dramatically different ways.

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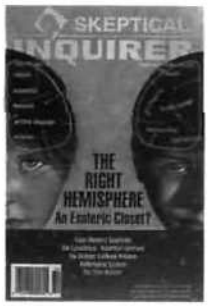

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FALL 1988 (vol. 13, no. 1): Special report: Astrology and the presidency / Improving Human Performance: What about parapsychology? / The China syndrome: Further reflections on the paranormal in China / Backward masking / The validity of graphological analysis / The intellectual revolt against science.

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"Men's science" dissected an event and attempted to empiricize it and in the process lost the Gestalt that was essential to understanding the event. It was the feminists' contention that *only* women could understand a holistic viewpoint.

The next stage of the feminists' argument was that nursing is an eclectic and holistic science that requires an understanding of each individual patient's Gestalt. Because nursing practice required a holistic view of patients and men could not comprehend this view, nursing research and the knowledge base of nursing should be developed by women. Their next conclusion was that caring requires specific mental functions that men are not able to accomplish. Therefore, men are incapable of "caring." Because caring is an essential aspect of the practice of nursing, nursing should be a wholly female profession. Thankfully, this viewpoint is not held by the majority of nurses or nurse researchers. However, I do see its oblique appearance in articles and editorials in nursing research journals and clinical journals.

In this context, I was especially pleased to see Koertge's article.

Dennis Ross, RN, MAE, Ph.D.
Middlebury, Vt.

That women in Women's Studies programs could appeal to "women's ways of knowing" rather than organized reasoning sounds to me as though these women have finally accepted the male perspective that there is such a thing as "women's intuition." Having once come close to getting slapped for using the term, I quickly realized that anyone who supported the idea (men) that women had to resort to intuition rather than reasoning was insulting the intelligence of women. I am happy to say that I know of no woman who feels that women must resort to intuition.

It appears to me that support of subjective thinking and intuition is nothing more than a rationalization of phobias about science, logic, and math. This amazing atavism in thinking brings to mind Margaret Atwood's book, *The Handmaid's Tale*, which created a futuristic world out of the odd combination of feminism and right-wing conservatism, much to the detriment of women.

Ray Sutera
Chicago, Ill.

The New York Academy of Sciences sponsored a conference, "The Flight from Science and Reason," May 31 to June 2 in New York City, on these same issues. We hope to have a report in a future issue. —EDITOR

The Repressed Memory Debate

I applaud Elizabeth Loftus's article on repressed memory ("Remembering Dangerously," *SI*, March-April).

I believe that there must be a legislative change with respect to repressed memory. I personally believe that the evidence indicates that many "repressed memories" are actually false memories induced either by interrogation or by the brain's own faulty recall mechanism, which may haphazardly link previously unrelated images. Yet there are many instances of temporary amnesia through physical, psychological, or chemical trauma. Here is my proposed solution to the sociological problem imposed.

Repressed memories may be submitted as evidence before a court of law if, and only if, there is a permanent record and transcript of the patient's therapy that elicited the repressed memory. This, of course, could only be done if the patient consented. Also, in 100 percent of such cases, conviction of a crime should require the presence of other, corroborating evidence.

If we implemented such a system, the methods used to elicit the memories could be scrutinized. Patients and therapists will complain that this will infringe on the rights of the patient to privacy. But what about the rights of acquitted individuals subjected to the physical, psychological, financial, and social trauma of such an accusation? What about the stigma associated with a trial?

If memory-recovery therapists really believe that their techniques are based on science, and not witchcraft, then they should submit their techniques to public scrutiny. Although doctor-patient confidences are, by law, confidential at the patient's request, the surgeon is nonetheless accountable for his surgical techniques. Maybe some of these therapists should be sued for malpractice.

Albert F. Case, Jr.
Troy, Mich.

In "Remembering Dangerously," Elizabeth Loftus asked whether the current trend in de-repressed memory was related to witch-hunting in earlier centuries. A significant hypothesis (p. 25) was that "during periods of intolerance any society looks for scapegoats." This hypothesis is difficult to evaluate because we have so little information on the reasons that such a period of intolerance should occur. I have my doubts that intolerance per se is a useful explanation. Where does the intolerance come from?

Further, Loftus noted (p. 26) that the witch-hunting period victimized the weak, while current accusations of childhood abuse (when they are untrue) victimize the strong. What is going on here?

Maybe if we look at a couple of other recent examples of "witch-hunting," we will detect a pattern. Nazi Germany conducted a witch-hunt against Jews, Catholics, homosexuals, and other non-Aryan "deviants." The U.S. House Un-American Activities Committee conducted a witch-hunt against socialists and Communists. In both of these instances, some (if not many) of the victims were wealthy and powerful. What do all four of these have in common?

My take is that all four movements were or are responses to a pervasive uncertainty on the part of a large portion of the populace. It is not (as Loftus mentioned on p. 26) fear of a specific threat (e.g., child abuse), but rather a generic unease that predisposes the perception of specific threats. When one feels impotent, one is highly motivated to find a distinct, clearly delineated, no-shades-of-gray source of danger. And, in order to be believable, that threat must coalesce into a person who has (or is alleged to have) power over those who are uneasy.

What is the seed that causes this generalized unease to crystallize around a specific threat? I believe it is the presence of a "priesthood" that has a socially sanctioned claim to legitimacy. Usually (and most likely in the case of de-repressed memory), the members of the priesthood are genuinely concerned about the plight of a group of victims or the society or humanity at large. They, too, are frustrated by their inability to pinpoint a clear threat. However, once they identify a threat, they leap upon it, generalize it, and legitimize it via their own institutional status. . . .

Today, counselors and therapists are concerned and frustrated at the numbers of clients who arrive functioning poorly and who have no clearly identifiable (and

therefore targetable) etiology. The availability of a panacea in the doctrine of repressed memory is too tempting to resist.

Van L. Knowles
Berea, Ky.

I am very concerned about your coverage of the "False Memory Syndrome" issue. I fear that your coverage has taken on the crusading flavor of the False Memory Syndrome Foundation (especially reference Martin Gardner's columns on the subject), is running well behind the available data, and is presenting a very misleading and derogatory image of the state and nature of psychotherapy in the U.S.

The profession as a whole has been concerned about the validity of long-repressed memories since long before the FMSF appeared, and this issue has been, in my experience, generally approached with some skepticism. The modal advice within the profession with regard to such cases has been: "Go carefully, do not jump to confrontation, stabilize the present, and treat the feelings respectfully." That this is the position of the overwhelming majority of clinicians is not reflected in your reports, which contain, in fact, no validated quantitative references whatsoever of the extent of the problem described. The professional community has been accumulating these numbers (see the preliminary report of the American Psychological Association special committee). The data reveal a situation that is cause for neither panic nor complacence. The FMSF has initiated a concerted attack upon the profession by asserting that it supports and encourages unskeptical and harmful practices. *SI* has, by the one-sidedness of its reporting, appeared to support this attack. It is as if you had declared that all psychiatrists are convinced of the validity of alien abductions, based upon your readings of the work of John Mack.

You publish an article by Elizabeth Loftus in which she presents anecdotal accounts of therapist impropriety, and then generalizes to the profession as a whole. Of note is the fact that her accounts are *not* of fully licensed or trained professionals (although I have no doubt that some malpractitioners can be found at this level). Loftus notes striking differences between the witch hunts of Salem and the modern cases of recovered memories, but fails to note the single most striking difference. There were *no* confirmed, corroborated witches in Salem. There *are* confirmed and corroborated recovered memories and abusers.

Kenneth L. Salzman
Licensed Clinical Psychologist
Lansing, Mich.

Elizabeth Loftus responds:

Kenneth Salzman expresses as fact his wishful thinking about the beliefs and practices of psychotherapists in terms of dealing with alleged repressed memories of childhood sexual abuse. I and others have been concerned about those who routinely attempt to excavate alleged "repressed" memories of abuse through invasive therapeutic techniques such as age regression, guided visualization, trance writing, dream work, body work, and hypnosis. Salzman and others wish to place the blame on the relatively untrained clinicians, and indeed there is some evidence in the recent work of psychologist Michael Yapko that problematic pratices may be more common among nondoctoral clinicians.

However, all of us need to take seriously the results of a new survey of highly trained licensed clinical psychologists soon to be published in the Journal of Consulting and Clinical Psychology *(Poole, Lindsay, Memon, and Bull, in press). This survey of trained practitioners in the U.S. and Britain revealed that a significant minority of clinicians believe they can identify clients who were sexually abused as children even when those clients deny abuse histories, that they use risky techniques to help clients recover suspected memories, and that as a group they view virtually any presenting complaint from an adult female client as a potential indicator of a history of childhood abuse. Although only a significant minority of clinicians (perhaps 25 percent, according to Poole et al.) engage in practices that are risky if not dangerous, this translates into a large number of practitioners. My article in the* SKEPTICAL INQUIRER *(as well as my recent book,* The Myth of Repressed Memory*) was one attempt to try to educate that minority, the merchants of mental chaos, so that they refrain from continuing in their reckless ways, and destroying families in the process. Fortunately I have been privileged to be joined by numerous talented clinicians in the essential effort.*

Lights Out!

The tone of Jan Harold Brunvand's article "Lights Out!" *(SI,* March-April) was a tad condescending toward the general public, which by and large fell for the fable. If we were all authors of books on urban legends (or even readers of such books), perhaps we might have been more suspicious at the outset. However, most of us *are* aware of certain documented aspects of gang behavior: some of them *do* have initiation requirements for membership, many are prone to committing extremely violent acts with little provocation, and more than a few have little or no regard for the sanctity of life, human or otherwise. Thus to hear that inner-city gangs from a distant state were using the "Lights Out" method of initiation would not have the same effect on us as an alert about alien abductions could. Nor would it be unreasonable to assume that a local gang from a nearby metropolis might adopt the idea and start cruising our quiet suburban streets looking for a Good Samaritan sap to waste. Because of the reports from south Florida, if someone rams my rental car while I'm on my way to Disney World, I'm not going to stop to exchange insurance information, and this policy could save my life. Until I had received more information on the "Lights Out" phenomenon, I intended to err on the side of caution with an extra dose of credulity.

Keith Trexler
Milford, N.H.

A true incident may have inspired the rumors and faxlore described in your "Lights Out!" story. Around the beginning of 1993, a driver in Stockton, California, signaled to the driver of a lightless vehicle in the customary fashion. An occupant of the unlit car responded with gunfire and killed a schoolteacher in the back seat of the other vehicle. The story received prominent coverage in the region's media.

Al Christians
Lake Oswego, Ore.

Jan Harold Brunvand replies:

I admit to being just a tad condescending toward the general public, which was perhaps understandably gullible about "Lights Out!" But many journalists and law-enforcement

personnel—quickly recognizing the warnings as bogus—were much more outspoken in their criticisms, as my article points out.

I learned about the Stockton, California, incident when my article was in press; after examining news stories, I concluded that it had no direct connection to the "Lights Out!" warnings. On September 18, 1992, a driver there used a hand signal to alert a driver behind him at a stoplight that his headlights were out. The driver of this second car, taking this as a sign of disrespect, shot at the first car, killing Kelly Freed, 29, a passenger, who was a longtime popular employee of a local school system, although not a teacher. In August 1993, at the sentencing, the prosecutor suggested that the convicted killer had acted "to save face with his fellow gang members"; however, the defense attorney denied that his client belonged to a gang. Never was a gang initiation mentioned in connection with this tragic case, and in February 1995, in articles about efforts to establish a Kelly Freed Teen Center in Stockton, no reference was made to gangs.

The differences in details between this actual crime and the supposed planned attacks described in the warnings, plus the fact that never in any news stories about the warnings—nor in any of the faxed warnings themselves—was the Stockton case mentioned, all suggest that the "Lights Out!" story developed independently.

Critique of Antievolution Paper

In Dan Larhammar's otherwise excellent article ("Severe Flaws in Scientific Study Criticizing Evolution," March/April 1995), the author errs by referring to "evidence . . . that argues against evolution as a phenomenon." As he states earlier in the same paragraph, "evolution is the process that has led to the life forms that inhabit Earth today." Because *evolution* is the word that scientists use to refer to that process, whose occurrence is beyond question in the context of scientific discourse, there can be no scientific evidence that it did not occur. The evidence the author discusses, like much other evidence, may support or contradict a particular theory of *how* evolution occurs, but only outside the context of science, e.g., in creationist literature, can any scientific evidence be said to argue *whether* evolution occurred. SKEPTICAL INQUIRER's editors should be most careful to ensure that such unscientific language never appears in one of its scientific articles.

Stan Kurzban
Chappaqua, N.Y.

Vitamin C and Illness

This exchange continues a debate begun in the May-June Letters column. —EDITOR

Recently Stephen Barrett claimed that vitamin C supplementation at best only slightly affects the symptoms of the common cold (*SI*, January-February). Barrett referred to the large-scale studies carried out by Anderson et al. but extracted no actual data from their reports. In their first study, Anderson et al. found that vitamin C supplementation (1-4 g/day) decreased the "numbers of days confined to house" per subject by 48 percent in subjects with a low dietary intake of fruit juices (1). Barrett's claim that at best there is only a slight reduction in symptoms appears grossly misleading considering the published results (1-4). Unlike Barrett, I have written scientific papers analyzing the effect of vitamin C on the common cold (2-5), and my conclusions are quite different from his. Pauling complained that many of his critics had not read either his texts or the original reports, and gave several detailed examples to support his case (6). Apparently many critics have thought that their main task is to educate the general public on the silliness of vitamin C supplementation, but not to inform themselves about the hard science on the topic.

Harri Hemilä, Ph.D.
Department of Public Health
University of Helsinki
Helsinki, Finland

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Stephen Barrett replies:

Anderson's first study found that the average number of confined days was 1.30 for the vitamin group and 1.87 for the placebo group—about half a day per person—which I calculate to be a 30 percent difference (.57 ÷ 1.87). Subsequent studies by Anderson and others have yielded conflicting results: some show a similar decrease in symptoms, others show none. Thus if a difference in house confinement exists, it is half a day or less, which I think has little practical significance. The "complaint" about "many of his critics" that Hemilä attributes to Pauling is on page 226 of reference 6, where Pauling "surmised" that most physicians had read neither his book (Vitamin C and the Common Cold) *nor any of the articles describing the controlled studies of vitamin C. The suggestion that no one who disagrees with Pauling has actually read the scientific literature on vitamin C is presumptuous and incorrect.*

Re "The Dark Side of Linus Pauling's Legacy" by Stephen Barrett (January-February, 1995), I will restrict my comments to the quotation from one of Pauling's books that megadoses of vitamins "can help in controlling heart disease, cancer and other diseases" and to Barrett's rejoinder: "No responsible medical or nutritional scientists share this view."

In 1990 a three-day symposium on the relation between cancer and vitamin C was held at the National Institutes of Health. The report of the symposium proceedings said: "Dr. Gladys Block (NIH) summarized the current epidemiological data on the role of ascorbic acid [vitamin C] in cancer prevention. Of 46 epidemiological studies reported, 33 described significant protective effects on cancer mortality or incidence."

More recently, a study in the journal *Epidemiology* by Enstrom et al. (May 1992) followed 11,348 subjects for an average of ten years. It reported a decrease of 12 percent in mortality from all causes for those who ate enough fruits and vegetables to provide them with at least 50

mg of vitamin C a day, and a decrease of 29 percent for those who used a vitamin C supplement in addition to the fruits and vegetables. For cardiovascular deaths the corresponding percentages were 13 percent and 36 percent for all subjects, 11 percent and 45 percent for males.

Edgar Villchur
Member, Board of Trustees
Linus Pauling Institute
of Science and Medicine
Palo Alto, Calif.

Science and Beauty

As always, Martin Gardner makes an excellent point in his piece "Science and Beauty" (*SI*, March-April). Knowledge of how the universe works certainly can and should deeply increase one's sense of its loveliness and, yes, mysteriousness.

However, perhaps Gardner overlooks an important source of much emotional reaction against the scientific worldview. Increasingly, scientific findings and theories extend the domain of physical causality into humankind itself. The more thoroughly our thoughts, feelings, and actions are shown to be matters of chemistry and structure, the less room is left for traditional free will, not to mention an immortal soul or a God.

It doesn't really do much good to say that these questions are not subject to empirical test and therefore lie beyond the purview of science. At best, this simply sweeps them under the rug. At worst, it is dishonest. The fact is, most of them are integrally involved with material reality. For example, St. Paul pointed out quite some time ago that Christianity stands or falls by whether or not the resurrection of Christ is a historical fact, i.e. a testable proposition. Moral and ethical standards depend largely on what the nature of the human organism is. And so on. Whether or not they articulate this to themselves, most people are quite able to perceive it, and to many it is a bitter pill to swallow.

Poul Anderson
Orinda, Calif.

In asserting a conflict between "the culture of science" and "the culture of liberal arts," all Martin Gardner accomplishes is to reinforce the fortress mentality I perceive in the pages of *SI*.

The liberal arts are not competitors with science, but rather serve us all as observers of and commentators on the human zoo. Both areas are complementary in creating and maintaining the well-functioning human being, and neither stands independent of the society in which it is found.

Jack Miller
Port Clements, B.C.
Canada

Disparaging Emily Dickinson, Wordsworth, Poe, et al. in the name of scientific skepticism? I can't think of a more foolproof way to alienate the romantics among us.

Surely we can allow the poet enchanted by nature to shun the skeptical lens for a few moments of reverie. I'm a nature poet myself, and I shudder to think that some of my lyrical lines could be skewered by the hardened skeptic as antiscientific.

Please, have some room in your scientific universe for the value of nonscientific experiences—unless you really want the world so entirely intellectually oriented that in your most intimate personal moments you hear the "voice of reason" declaring "I'm so chemically receptive to your pheromones" instead of your heart whispering "I love you"!

Gloria J. Leitner
Boulder, Colo.

I am enjoying your emphasis upon "science and reason." Nobody is ever going to be able to knock out pseudoscience. The world would be a much drearier place if there were no nonsensical ideas to laugh about now and then. For one thing, there would be no place for skeptics. They would be out of meaningful employment. The SKEPTICAL INQUIRER would become a mere memory.

Gone, too, would be many creative people. It takes a great amount of intelligence and ingenuity to produce one good unadulterated scam and then to keep the scientific intelligentsia from uncovering its fallacies.

The beauty of science, in itself, is sufficient. One turns off the credulous when one attacks in full force. I am certain that, by asserting the joys of "science and reason" instead of pure skepticism, you will make many more converts and hopefully avoid some of the negatives, such as lawsuits, for example.

I have enthusiastically read your magazine for a long time.

Lorna J. Simmons
Westland, Mich.

"The X-Files"

After reading Eugene Emery's humorless discussion of "The X-Files" (*SI*, March-April), my response is: "Lighten up Gene, it's fiction."

What's next, a serious critique of the techno-babble on Star Trek?

Daniel Cohen
Cape May Court House, N.J.

Eugene Emery replies:

I don't let the facts get in the way of my enjoyment of "The X-Files," and well-informed fans of the show will recognize the program for what it is—good entertainment.

But my experience with people who have not been exposed to the scientific side of paranormal events, combined with comments I've seen on the X-Files corner of the Internet, suggest that there are also fans who believe they're watching stories based on fact. It gives credence to my motivating concern that, if the program isn't trying to use fiction to lend undeserved legitimacy to the paranormal, it is having that effect on some viewers.

In the wake of my column, and my News and Comment item about the program that got the Coriolis force backwards (SI, May-June 1995), X-Files co-executive producer Glen Morgan wrote me a nice note explaining that the Coriolis description was an unintended error and how, "When asked by fans about these moments in the shows, I enjoy popping their balloons and explaining how I just made it up." Morgan said he and his partner approach each episode as a satire or parody of those people so willing to believe any *ridiculous conspiracy or phenomenon placed before them that is labeled 'supernatural.'"*

The letters column is a forum for views on matters raised in previous issues. Letters should be no more than 250 words. Due to the volume of letters, not all can be published. They should be typed double-spaced. Address: Letters to the Editor, SKEPTICAL INQUIRER, 944 Deer Dr. NE, Albuquerque, NM 87122.

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ARGENTINA. CAIRP, Director, Ladislao Enrique Marquez, Jose Marti, 35 dep C, 1406 Buenos Aires.

AUSTRALIA. National: **Australian Skeptics,** P.O. Box A2324, Sydney South, NSW 2000, (E-mail: skeptics@spot.-tt.sw.au.oz). Regional: **Australian Capital Territory,** P.O. Box 555, Civic Square, 2608. **Newcastle Skeptics,** Chairperson, Colin Keay, Physics Dept., Newcastle University, NSW 2308. **Queensland,** P.O. Box 2180, Brisbane, 4001. **South Australia,** P.O. Box 91, Magill, 5072. **Victoria,** P.O. Box 1555P, Melbourne, 3001. **Western Australia,** P.O. Box 899, Morley WA 6062.

BELGIUM. Committee Para, J. Dommanget, Chairman, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels. **SKEPP,** W. Betz, Secretary, Laarbeeklaan 103, B1090 Brussels (FAX: 32-2- 4774301).

BRAZIL. Opcão Racional, Luis Gutman, Rua Santa Clara,431, Bloco 5, Apt. 803, Copacabana - Rio de Janeiro 22041-010 (021-227-8694).

CANADA. Alberta Skeptics, Heidi Lloyd-Price, Secretary, P.O. Box 5571, Station A, Calgary, Alberta T2H 1X9. **British Columbia Skeptics,** Lee Moller, contact, 1188 Beaufort Road, Vancouver V7G 1R7. **Manitoba Skeptics.** Contact John Toews, President, Box 92, St. Vital, Winnipeg, Man. R2M 4A5. **Ontario Skeptics,** Henry Gordon, Chairman, 343 Clark Ave West, Suite 1009, Thornhill Ontario L4J 7K5. **Sceptiques du Quebec:** Jean Ouellette, C.P. 202, Succ. Beaubien, Montreal H2G 3C9.

CZECH REPUBLIC. Czech Club of Skeptics, Milos Chvojka, nám. Jirího z Lobkovic 7, CS-130 00 Prague 3, The Czech Republic.

ESTONIA. Contact Indrek Rohtmets, Horisont, EE 0102 Tallinn, Narva mnt. 5.

EUROPEAN COUNCIL OF SKEPTICAL ORGANIZATIONS. Amardeo Sarma, Secretary, Postfach 1222, D-64374 Rossdorf (FAX: +49 6154 81912).

FINLAND. Skepsis, Veli Toukomies, President, Rintamamiehentie 15, 06100 Porvoo. (358-15-5249-3200, Fax: 358-15-584-620).

FRANCE. Cercle Zetetique, Contact: Henri Broch, 12 Rue David Deitz, 57000 Metz. **Comite Francais pour l'Etude des Phenomenes Paranormaux,** Claude Benski, Secretary-General, Merlin Gerin, RGE/A2 38050 Grenoble Cedex.

GERMANY. Society for the Scientific Investigation of Para-Science (GWUP), Amardeo Sarma, Convenor, Postfach 1222, D-64374 Rossdorf (FAX: +49 6154 81912).

HONG KONG. Hong Kong Skeptics. Contact Rebecca Bradley, P.O. Box 1010, Shatin Central Post Office, Shatin, NT.

HUNGARY. Hungarian Skeptics, Gyula Bencze, *Termeszet Vilaga,* P.O. Box 25, Budapest 8,1444. (Fax 011-36-1-118-7506).

INDIA. Indian Skeptics, B. Premanand, Chairman, 10 Chettipalayam Rd., Podanur 641-023 Coimbatore Tamil nadu. **Indian Rationalist Association,** Contact, Sanal Edamaruku, 779, Pocket 5, Mayur Vihar 1, New Delhi 110 091. **Maharashtra Superstition Irradication Committee,** Dada Chandane, Secy., D/6, First Floor, Super Market, Solapur 413001.

ISRAEL. Israel Skeptics Society, Philip Marmaros, Chairman, P.O. Box 8481, Jerusalem. (Fax: 972-2-611652, E-mail: humefect@elronet.co.il).

IRELAND. Irish Skeptics, Peter O'Hara, Contact, St. Joseph's Hospital, Limerick.

ITALY. Comitato Italiano per il Controllo delle Affermazioni sul Paranormale, Massimo Polidoro, Editor, *Scienza & Paranormale,* P.O. Box 60, 27058 Voghera (PV).

JAPAN. Japan Skeptics, Jun Jugaku, Chairperson, Business Center for Academic Societies Japan, 16-9 Honkomagome 5-chome, Bunkyo-Ku, Tokyo 113.

MEXICO. Mexican Association for Skeptical Research (SOMIE), Mario Mendez-Acosta, Chairman, Apartado Postal 19-546, Mexico 03900, D.F.

NETHERLANDS. Stichting Skepsis, Rob Nanninga, Secretary, Westerkade 20, 9718 AS Groningen.

NEW ZEALAND. New Zealand Skeptics, Vicki Hyde, Chairperson, South Pacific Publications, Box 19-760, Christchurch 5, N.Z., Fax: 64 3 384-5138.

NORWAY. NIVFO, K. Stenodegard, Boks 9, N-7082, Kattem. **Skepsis,** Terje Emberland, Contact, P. B. 2943 Toyen 0608, Oslo 6.

RUSSIA. Contact Edward Gevorkian, Ulyanovskaya 43, Kor 4, 109004, Moscow.

SOUTH AFRICA. Assn. for the Rational Investigation of the Paranormal (ARIP), Marian Laserson, Secretary, 4 Wales St., Sandringham 2192. **SOCRATES,** Leon Retief, contact, 3 Hoheizen Crescent, Hoheizen, Bellville 7530.

SPAIN. Alternativa Racional a las Pseudosciencias (ARP). Carlos Telleria, Executive Director, Apdto. 1516, 50080 Zaragoza. **El Investigador Esceptico.** Contact Felix Ares De Blas, Gámez/Ares/Martinez, P. O . Box 904, 20080 Donostia-San Sebastian.

SWEDEN. Vetenskap dc Folkbildning (Science and People's Education), Sven Ove Hansson, Secretary, Box 185, 101 23 Stockholm.

TAIWAN. Tim Holmes, # 269 Chung Hsing Rd., Fengyuan.

UKRAINE. Perspective, Oleg G. Bakhtiarov, Director, 3-B Khmelnitskogo St., 252001 Kiev.

UNITED KINGDOM. SKEPTICAL INQUIRER Representative, Michael J. Hutchinson, 10 Crescent View, Loughton, Essex IG10 4PZ. **The Skeptic** magazine, Editors, Toby Howard and Steve Donnelly, P.O. Box 475, Manchester M60 2TH. (E-mail: toby@cs.man.ac.uk). **London Student Skeptics,** Contact: Bill Harman, 21 Manville Rd., London SW17 8JW. **Wessex Skeptics,** Robin Allen, Dept. of Physics, Southampton Univ., Highfield, Southampton S09 5NH.

United States

ALABAMA. Alabama Skeptics, Emory Kimbrough, 3550 Watermelon Road, Apt. 28A, Northport, AL 35476 (205-759-2624) .

ARIZONA. Tucson Skeptics Inc. James McGaha, Chairman, 7049 E. Tangue Verde Rd., Suite 370, Tucson, AZ 85715. **Phoenix Skeptics,** Michael Stackpole, Chairman, P.O. Box 60333, Phoenix, AZ 85082.

CALIFORNIA. Bay Area Skeptics, Wilma Russell, Secretary,17723 Buti Park Court, Castro Valley, CA 94546. **East Bay Skeptics Society,** Daniel Sabsay, Pres., P.O. Box 20989, Oakland, CA 94620 (510-420-0702). **Sacramento Skeptics Society,** Terry Sandbek, 3550 Watt Ave., Suite #3, Sacramento, CA 95821 (916-488-3772), E-mail: tsandbek.mother.com.

COLORADO. Rocky Mountain Skeptics, Béla Scheiber, President, P.O. Box 7277, Boulder, CO 80306 (303-444-5368).

D.C. Capital Area. National Capital Area Skeptics, c/o D.W. "Chip" Denman, 8006 Valley Street, Silver Spring, MD 20910.

FLORIDA. Tampa Bay Skeptics, Gary Posner, 1113 Normandy Trace Rd., Tampa, FL 33602 (813-221-3533), E-mail: garypos@aol.com.

GEORGIA. Georgia Skeptics, Becky Long, President, 2277 Winding Woods Dr., Tucker, GA 30084.

ILLINOIS. Midwest Committee for Rational Inquiry, Danielle Kafka, President, P.O. Box 2792, Des Plaines, IL 60017-2792. **Rational Examination Assoc. of Lincoln Land** (REALL), David Bloomberg, Chairman, P.O. Box 20302, Springfield IL 62708 (217-525-7554).

INDIANA. Indiana Skeptics, Robert Craig, Chairperson, 5401 Hedgerow Drive, Indianapolis, IN 46226.

KENTUCKY. Kentucky Assn. of Science Educators and Skeptics (KASES), Chairman, Prof. Robert A. Baker, 3495 Castleton Way North, Lexington, KY 40502.

LOUISIANA. Baton Rouge Proponents of Rational Inquiry and Scientific Methods (BR-PRISM), Dick Schroth, Director, 425 Carriage Way, Baton Rouge, LA 70808-4828 (504-766-4747).

MASSACHUSETTS. Skeptical Inquirers of New England. Contact Laurence Moss, Ho & Moss, 72 Kneeland St., Boston 02111.

MICHIGAN. Great Lakes Skeptics, Carol Lynn, contact, 1264 Bedford Rd., Grosse Pointe Park, MI 84230-1116.

MINNESOTA. Minnesota Skeptics, Robert W. McCoy, 549 Turnpike Rd., Golden Valley, MN 55416. **St. Kloud ESP Teaching Investigation Committee** (SKEPTIC), Jerry Mertens, Coordinator, Psychology Dept., St. Cloud State Univ., St. Cloud, MN 56301.

MISSOURI. Kansas City Committee for Skeptical Inquiry, Verle Muhrer, Chairman, 2658 East 7th, Kansas City, MO 64124. **Gateway Skeptics,** Chairperson, Steve Best, 6943 Amherst Ave., University City, MO 63130.

NEW MEXICO. New Mexicans for Science & Reason, John Geohegan, Chairman, 450 Montclaire SE, Albuquerque, NM 87108; John Smallwood, 320 Artist Road, Santa Fe, NM 87501 (505-988-2800).

NEW YORK. Inquiring Skeptics of Upper New York (ISUNY), Contact, Michael Sofka, 8 Providence St., Albany, NY 12203. (518-437-1750). **New York Area Skeptics** (NYASk), Wayne Tytell, contact person, 159 Melrose Ave., E. Massapequa, NY 11758, (516-798-6902). **Western New York Skeptics,** Tim Madigan, Chairman, 3965 Rensch Rd., Buffalo, NY 14228.

OHIO. South Shore Skeptics, Page Stephens, 6006 Fir Avenue, Cleveland, OH 44102 (216-631-5987). **Association for Rational Thinking** (Cincinnati area), Joseph F. Gastright, Contact, 111 Wallace Ave., Covington, KY 41014 (606-581-7315).

OREGON. Oregonians for Rationality, Contact, Bill Capron, PO Box 4739, Vancouver, WA 98662 (206-260-1896)

PENNSYLVANIA. Paranormal Investigating Committee of Pittsburgh (PICP), Richard Busch, Chairman, 8209 Thompson Run Rd., Pittsburgh, PA 15237 (412-366-4663). **Philadelphia Association for Critical Thinking** (PhACT), William A. Wisdom, 76 Limekiln Pike, Glenside, PA 19038 (215) 884-3885.

TEXAS. Houston Association for Scientific Thinking (HAST), Darrell Kachilla, P.O. Box 541314, Houston, TX 77254. **North Texas Skeptics,** Joe Voelkering, President, P.O. Box 111794, Carrollton, TX 750111794.

WASHINGTON. The Society for Sensible Explanations, P.O. Box 7121, Seattle, WA 98133-2121. Tad Cook, Sec/Treas. (E-mail: tad@ssc.com).

WISCONSIN. Contact person: Roxine McQuitty, MATC-West, 1200 S. 71st St., West Allis, WI 53214 (414-456-5402, 414-873-4446, McQuitty@Music.lib.MATC.edu).

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Bernard J. Leikind, staff scientist, GA Technologies Inc., San Diego

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James E. McGaha, Major, USAF; pilot

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Robert J. Samp, assistant professor of education and medicine, University of Wisconsin-Madison

Steven D. Schafersman, geologist, Houston

Béla Scheiber,* system analyst, Boulder, Colo.

Chris Scott, statistician, London, England

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Erwin M. Segal, professor of psychology, SUNY, Buffalo

*Member of CSICOP Executive Council

Elie A. Shneour, biochemist; director, Biosystems Research Institute, La Jolla, California

Steven N. Shore, associate professor and chair, Dept. of Physics and Astronomy, Indiana Univ. South Bend

Barry Singer, psychologist, Eugene, Oregon

Mark Slovak, astronomer, University of Wisconsin-Madison

Gordon Stein, physiologist, author; editor of the American Rationalist

Waclaw Szybalski, professor, McArdle Laboratory, University of Wisconsin-Madison

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CSICOP SUBCOMMITTEES

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Electronic Communication Subcommittee: Chairman, Page Stephens, 6006 Fir Ave., Cleveland, OH 44102. E-Mail: Jim Kutz aa387@Cleveland.Freenet.edu

Health Claims Subcommittee: Co-chairmen, William Jarvis, Professor of Health Promotion and Education, School of Public Health, Loma Linda University, Loma Linda, CA 93350, and Stephen Barrett, M.D., P.O. Box 1747, Allentown, PA 18105.

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The Committee for the Scientific Investigation of Claims of the Paranormal encourages the critical investigation of paranormal and fringe-science claims from a responsible, scientific point of view and disseminates factual information about the results of such inquiries to the scientific community and the public. It also promotes science and scientific inquiry, critical thinking, science education, and the use of reason in examining important issues. To carry out these objectives the Committee:

- Maintains a network of people interested in critically examining paranormal, fringe-science, and other claims, and in contributing to consumer education
- Prepares bibliographies of published materials that carefully examine such claims
- Encourages research by objective and impartial inquiry in areas where it is needed
- Convenes conferences and meetings
- Publishes articles that examine claims of the paranormal
- Does not reject claims on a priori grounds, antecedent to inquiry, but examines them objectively and carefully

The Committee is a nonprofit scientific and educational organization. The SKEPTICAL INQUIRER is its official journal.